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Effectiveness of computer/video assisted instruction for adults in a nonformal setting: a preliminary study

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EFFECTIVENESS OF COMPUTER/VIDEO ASSISTED INSTRUCTION FOR
ADULTS IN A NONFORMAL SETTING--A PRELIMINARY STUDY

Iowa State University

Ph.D. 1986

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Effectiveness of computer/video assisted instruction for
adults in a nonformal setting--a preliminary study

by

Phillip Craig Hamilton

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY

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Approved:

Signature was redacted for privacy.

In Charge of Major Work

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For the Major Department

Signature was redacted for privacy.

For ~~the~~ Graduate College

Iowa State University
Ames, Iowa

1986

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INTRODUCTION

Agriculture and other industries are continually being affected by change. Just as in other industries, a "world economy" and the effects of "high-technology" are greatly influencing the behavior of every agricultural producer (Naisbitt, 1982). Better communications and the availability of more complete information are changing day-to-day activities of these producers. Farming is now more of a business than a "way of life."

Changes that are occurring and that will continue to occur create competition for agricultural producers' time and attentiveness. Because of these changes, no longer will traditional business and educational methods be able to compete for the producers' time. Satellite receivers, computers, robots, lasers, cybernetics, and other "high-tech" devices will dominate how business and educational activities are conducted. Influence of high-tech will affect individuals as they proceed with their affairs. The effect will be no different for agricultural producers as they mainstream their business activities with other agricultural and nonagricultural businesses.

The ability to attract agricultural producers to participate in educational and noneducational activities is becoming increasingly difficult due to time constraints

and the variety of such activities from which to choose. Unlike early cooperative extension and young farmer programs, educational meetings are no longer the center of rural social activity.

Cosmopolitan farmers and agribusinessmen readily center both recreational and informational events around mass media. Beyond common modes such as agricultural magazines, newspapers, and television, they utilize electronic databases, conference calls, and videotapes. Computers are also increasing as decision aids and educational enhancements for these agriculturalists.

During the years between World War II and the late 1970s, agricultural producers, as a whole, were the recipients of vast technological advances in agriculture and experienced a boom in food and fiber production. These technological advances allowed a time of prosperity with boosts to farm income and farm operation expansion. The most important management decisions consisted of: seed varieties, amounts and types of fertilizer and other chemical applications, and timing of farm operations. Financial and marketing tools were not needed by producers who had adequate collateral to weather the cyclical variation of prices and yields.

During the 1980s, the financial health of agricultural firms changed dramatically. Land and machinery values

declined drastically. Agricultural producers who previously were able to "roll-over" farm losses into the next year because of increasing fixed asset values were unable to continue this practice. As a result, management, marketing, and financial alternatives became more important, while at the same time becoming increasingly complex. Sound decision-making processes became imperative and many agricultural producers were either not aware of viable alternatives that were available to them or lacked sufficient working knowledge of the alternatives to be able to benefit from them.

Advanced agricultural marketing and financial strategies should be studied and utilized by agricultural producers across the United States. In this way, a greater number of farmers can use these advanced strategies to: lower risks, expand marketing periods, and become more profitable. Not only will the producers be able to weather the financial storm of today, but they will be able to adequately deal with the structural changes that are occurring in agriculture that will continue throughout the rest of the century.

Educational programs in agricultural marketing need to be developed and made available to agricultural producers that encompass these advanced strategies. In this way, the educational gap between knowledge needed and knowledge

attained by agricultural producers can be diminished.

Educational programs must cater to today's producers in order to obtain and maintain their interest long enough for them to gain sufficient knowledge to actually use the advanced strategy being taught. That is, agricultural courses and lessons need to be: (1) interesting enough to attract students and keep their attention (in order to compete with satellite receivers, in-home movies, video-games, etc.); (2) flexible enough to allow potential students to work class and study time into their busy schedules; and (3) complete enough to give adult students confidence that they have adequate comprehension of the marketing technique to apply it to their own farm or ranch situation.

A recent development in personalized instruction systems is an interactive learning package that consists of merging lessons developed for use with a computer and a video cassette recorder (VCR). It consists of displaying a videotape (or disk) and then added text and/or examination. Quite often, positive feedback is achieved by branching of computer screens to allow the individual student to re-study a portion of the lesson and re-test before continuing (Schwartz, 1980; Sousa, 1979).

Rovick presented the following as a definition of a "computer lesson":

A computer lesson, sometimes called a tutorial, is an interactive program that attempts to teach something, usually in a relatively small, circumscribed knowledge area. It is interactive because there is bidirectional communication between the student-user and the teacher by way of the program. However, the teacher is not physically present when the interchange actually takes place. Therefore, many things must be anticipated when the lesson is designed and written (1985, p. 173).

An example of interactive video and computer assisted learning (CAI) follows:

1. Students individually study text and/or video screens in logical sequence at their own pace.
2. Students may choose to review previous screens at any time.
3. A certain number of screens (usually containing a single concept) present test questions to reinforce knowledge and provide immediate feedback to the student.
4. Students are given a second chance for correct responses and/or receive hints to correct question responses.
5. Rewards (visual and/or musical) are often built into interactive learning systems that help encourage further study. Final tabulation of scores indicates to students the possible need to re-take the CAI course.

Advantages of integrating computer assisted instruction and video tapes are given by Schwartz:

On the one hand, videotape can present moving, colorful, visual materials; it can permit spoken descriptions, instructions or other sounds; and it can counterbalance the more formal, text-bound character of some computer-assisted instruction. On the other hand, a computer can offer branching, programmed learning; it can generate text and graphics; it can allow for easy modification of teaching materials; it can bypass what the student already knows; it can score responses, if desired; it can be programmed to start and pause the videotape at the chosen points in the presentation (1980, p. 116).

The Cooperative Extension Service is an excellent avenue to provide CAI computerized/VCR instruction to agricultural producers. Since Extension's inception, it has developed a non-formal, adult clientele that has been responsive to educational programs on various types of farm management issues. It has used various teaching methods to encourage agricultural producers to accept many technological advances over the years. The teaching methods have included: county fairs, judging contests, field demonstrations, and educational meetings and seminars. Will adult students, such as cooperative extension clientele or young farmers, use CAI/video instruction? If they will use it, can they learn as much as or more than they could from traditional teaching methods?

A need exists to evaluate the effectiveness of CAI/video instruction for use with adults in the non-formal setting of adult education.

Purpose of Study

The purpose of the study was to determine if an interactive computer assisted learning package and videotape could aid adult farmers learn in a nonformal instructional setting. Specific objectives were to:

- (1) Evaluate the computer/video assisted teaching method for its ability to help students learn advanced marketing topics.
- (2) Assess the relationship between selected demographic factors and the ability of adult learners to master marketing topics when taught by an interactive computer assisted learning package and video tape.
- (3) Determine the implications of using the above instructional technique in adult farmer instructional programs.

LITERATURE REVIEW

Computer-assisted instruction, computer/video interactive learning packages, and other personalized systems of instruction all have their beginnings in the work of Fred S. Keller and B. F. Skinner (Ruskin, 1974). Keller's work on teaching Morse code during World War II generated the following observations regarding efficient teaching environments: (1) they are highly individualized; (2) goals of learning are specified; (3) material to be learned is divided into carefully graded steps; and (4) demand for perfection is present. This is congruent to Skinner's elements of learning theory: (1) material presented should be in small sequential blocks with all terminal objectives well-defined; (2) learning situations should be such that there is immediate feedback on performance checks; and (3) punishment must be kept to a minimum.

In a 1984 interview, Green (1984) told of his discussions with B. F. Skinner. He reported that Skinner considered his early "learning machines" to be awkward compared to today's computer-assisted instruction. However, Skinner still believed in the same principles on which the earlier "programmed learning" was based. Those were: "We act and think in the ways for which we are reinforced, and cease acting and thinking when reinforcement ceases" (1984,

p. 23).

Skinner believed that a well-designed instructional problem, whether by computer or by teaching machine, held the student's interest so that he or she would want to study and work hard. He had little use for fancy formats or graphics. In Skinner's opinion, "program enhancements" may actually detract from the subject matter being learned.

Several comparative computer assisted instruction studies of the late 1970s and early 1980s concluded that the instructional method was as good as or better than conventional instructional methods (Deignan and Duncan, 1978; Dence, 1980; Gershman and Sakamoto, 1981; Hallworth and Brebner, 1980; Kearsley, 1976; Magidson, 1978; Paden et al., 1977; Watt, 1980). In addition, Deignan and Duncan (1978), Dence (1980), Gershman and Sakamoto (1981), Kearsley (1976), and Magidson (1978) found that educational performance occurred in a shorter time.

Splittgerber (1979) found that retention time may be decreased when comparing computer-assisted instruction to more conventional instructional methods.

Smith and von Feldt (1977) studied computer-assisted and videotaped instruction with deaf students at the National Technical Institute for the Deaf (one of nine colleges at Rochester Institute of Technology). They used a model called CAI Webdi, which was developed by von Feldt

and Young while working on a project entitled SKILL. The model included development of seven videotapes, a teacher's manual, handbooks, tests, and test keys. The program was field tested in two ways: (1) as an instructional activity that was independent of classroom activity; and (2) as an integrated classroom activity where students viewed the television outside class, but completed basic CAI instruction in class. Results of the computer-assisted experience were measured by student performance and time required to complete the program. They indicated that the integrated CAI instruction version was more effective in subsequent learning than the independent lab version. Smith and von Feldt cautioned about drawing conclusions from the study due to variables relating to review, retention, and difficulty in managing tape locations.

The important conclusion that was drawn from these investigations was that "cognitive skills were taught well by CAI in a short time without requiring teacher or student time in class." Smith and von Feldt (1977, p. 12) inferred that combining sound and motion of television with the interactive drill and practice of computer-assisted instruction provided for greater gains of learning in a shorter period of time.

In a paper presented at the National Institute on Social Work in Rural Areas, McNeece (1981) suggested that

human services agencies in rural areas could provide adequate staff training using high-tech teaching devices such as videotapes and microcomputers. He reported, based on a 1979 survey of 400 companies which said that microcomputers for training could be successful if (1) the training problem was delineated and investigated before computerized instruction was selected; (2) individualized applications were developed for learner needs; (3) projects were integrated into a larger educational environment; (4) training was integrated into the work environment; and (5) training programs were interactive with the student. They suggested that the most important lesson to be learned was that the agency training staff must be convinced of the advantages of computer-assisted learning before implementing the program.

Evaluation of a new staff training program for social workers in Florida forwarded the following conclusions:

1. Computers and audio-visual equipment will not eliminate the need for human trainers.
2. Training problems must be identified and defined before a computer system is adopted.
3. The same principles of instructional design that are applicable in face-to-face instruction should be used in CAI and CMI.
4. Computers and other high technology equipment cannot be expected to handle training problems that are due to an inadequate knowledge base.

5. Immediate improvement in worker performance should not be expected (McNeese, 1981, pp. 7-8).

He suggested that the most important conclusion was that training staff must be thoroughly convinced of advantages in using high technology equipment.

In an effort to evaluate theory-based computer-video instructional modules, Henderson et al. (1984) conducted field tests on mathematics students. The concepts and skills included in the modules were identified through the application of Gagne's task analysis (Gagne, 1977). Learning hierarchies were developed by two mathematicians working with an educator and a psychologist.

A School Learning Questionnaire (SLQ) was developed to assess attributions via a Likert-type response format. The scores were analyzed by using a 2 x 2 analysis of covariance, with the pretest score as the covariate.

Henderson et al. (1984) felt that the field trials quite clearly indicated that the computer-video instructional modules were effective in teaching mathematical skills and concepts to secondary school students. They attribute much of the effectiveness to the positive reinforcement that students receive while completing the modules.

An examination of the use of computer-assisted instruction (CAI) for grammar-oriented exercises was reported in

1982 by Lavine and Fechter. They also studied CAI as a tool for teaching the Test of English as a Foreign Language (TOEFL). Brief guidelines for developing computer-assisted instruction were included as well as descriptions of the instructional components. These included an area not traditionally associated with CAI: the practice of language functions, and notional-functional exercises. The investigators found that TOEFL students were able to learn with the computer-assisted instruction.

In 1976, Ellinger and Frankland compared computer-assisted instruction with lecture instruction in an experiment with geography graduate students at the University of Iowa (1976). The experiment had two main objectives: (1) to find which method provided absolute increase in knowledge of spatial competition concepts and individual increases in certain types of knowledge such as recall, comprehension, and application; and (2) complete a cost comparison of the two methods.

Data were collected from 92 students enrolled in introductory human geography. They were divided into two groups. One group contained 40 students who had the computer instruction (treatment). The other group had 52 students who were taught by the lecture method (the control group). Both groups received pre- and post-tests.

Test scores were analyzed by a t-test to determine:

(1) if the class distribution was random; (2) whether performance was increased by instruction; (3) which instructional method had the higher performance level; and (4) whether one of the instructional methods was more effective in teaching recall and/or comprehension.

Findings of the Ellinger and Frankland experiment failed to provide definitive conclusions about which method (computer-assisted or lecture) was best. The traditional method did seem to be most cost-effective if one discounts any intrinsic value provided by the innovative method.

An ongoing project by the U.S. Naval Academy called CAVE (Computer Augmented Video Education) was designed to improve quality of instruction as reported by Captain M. B. Sousa (1979). The project merged the "instructional advantages of existing instructional television and academic computer systems" (1979, p. 46). Sousa listed the following advantages of CAVE:

1. The student learns visually while also taking an active role in the learning process.
2. Instruction can be adjusted to individual student needs.
3. Instruction can be presented which might be otherwise too impractical or time-consuming for classroom presentation.
4. Records can be kept to allow the student, as well as the instructor, to review the results of the student's learning experience.

Lavine and Fechter (1982) listed the following

"Guidelines for Pedagogically Sound CAI" (p. 20):

1. Determine and limit the focus of a specific CAI exercise.
2. State directions clearly and concisely.
3. Pace the exercise according to the students' level of proficiency and the material covered.
4. Formulate appropriate feedback--positive, negative, and corrective.
5. Include reinforcement appropriate to the type and purpose of the exercise.
6. Grade materials, either through sequencing, branching, or through modules.
7. Maintain programming in a secondary position of importance to educational considerations.

Two field trials using a micro-computer interfaced with a videocassette recorder (VCR) were conducted by Henderson and others (1983). They were conducted on students who had not made normal progress in mathematics learning. The first field trial consisted of 58 experimental students from a high Hispanic population. The students participated in instructional modules covering prime numbers and factors. The investigators used a criterion-referenced, pre-test and post-test and a School Learning Questionnaire (SLQ) on both the experimental group and 43 control students. A second field trial re-tested the prime numbers and factors modules and provided a pilot test of a fractions module. Eleven students volunteered from an alternative school remedial program for

students who had failed to pass a competency test of basic skills to participate in the experiment.

The results of the field trials revealed that the computer/VCR instructional modules were effective in teaching or reteaching mathematical skills to secondary school students. The belief that exposure to the instructional materials would be reflected in an increase in effort attributions specific to mathematics was not supported.

An interactive instructional program was prepared and administered by Humes (1983) for elementary and middle school students. Students in the program were given instruction on combining sentences to create a specific syntactic structure. By receiving prompting, they created and joined sentences by special "joiners" such as "and," "or," etc.

Success of the program was demonstrated by a field test of fourth through sixth grade students. The students were able to handle instructional content and handled word-processing skills better than anticipated. Humes found that the main problem in her reading skills program was the reading required prior to using the program.

Gleason (1981) noted that many researchers were no longer comparatively studying the effects of computer-assisted instruction versus other instructional methods

since it was extremely difficult to control the number of significant variables in a learning situation.

Others continue to evaluate the effectiveness of various instructional methods. Aiken and Braun (1980) noted that the "results have been meaningful only as measures of performance; other methods will have to be considered if we are to have meaningful measures of learning" (p. 14).

In a study of computer-assisted instruction in schools, Hallworth and Brebner (1980) presented evidence that indicated that the effects of computer-assisted instruction on achievement is not changed by: type of computer-assisted instruction used; type of computer system; age range of students; or type of measurement instrument used. In addition, they found that students usually had a positive attitude towards computer-assisted instruction. This was often accompanied by increased motivation, greater attention span, and better course attendance.

Forman (1982) concluded that computer-assisted instruction had the following additional advantages:

- (1) the instructor could easily individualize instruction;
- (2) CAI stimulated experiences especially created by computer use;
- (3) it provided immediate student feedback, reinforcement, and systematic curriculum; and
- (4) it provided easy access to review and special help.

Kulik et al. (1983) used meta-analysis to integrate

findings from 51 independent studies of computer-based teaching in grades 6 through 12 (1983). Results of the study revealed that this teaching method "raised students' scores on final examinations by approximately .32 standard deviations, or from the 50th to the 63rd percentile" (p. 19). They also observed that computer-based instruction had smaller, positive effects on follow-up examinations. Extra benefits include: very positive attitudes toward the computer and positive attitudes toward the course. Also, student learning time was reduced by computer-based instruction.

According to a research summary presented by Fisher (1982), computer-assisted instruction was effective when the following conditions existed: (1) when it was aimed at a specific student group; (2) when it was fully integrated into the regular classroom curriculum; (3) when certain subject areas were selected; and (4) when the proper setting and scheduling was established.

He pointed out that one computer-assisted instruction variable that was often ignored since it was hard to measure was the quality and appropriateness of the CAI software program being used (1984, p. 82).

Low-achieving students tended to learn more without the extra frills according to the study by Fisher (1984). In addition, several other studies indicated that these

students learned even better than medium or high ability students (Aiken and Braun (1980); Deignan and Duncan (1978); Dence (1980); Gershman and Sakamota (1981); Hirschbuhl (1978)).

In a comparison of an interactive video system of instruction to traditional CPR instruction, Lyness (1985) found no significant difference in performance between the two methods. She did find that interactive video taught "obstructed airway in basic life support" better.

Trede et al. (1985) studied computer-assisted instruction (CAI), without the addition of video, for Iowa highschool teachers of vocational agriculture. The 112 participants were taught concepts and problem-solving in farm management and agricultural marketing using a spreadsheet computer program. They were randomly divided into an experimental group receiving CAI and a control group receiving conventional instruction. Pre-tests and post-tests were administered, but no attempts were made to indicate if learning occurred from taking the pre-tests. The researchers found that "the microcomputer can be an effective tool in teaching farm management and agricultural marketing concepts and problems" (p. 17). They did admit that using the microcomputer to teach these subjects was not significantly better than conventional instructional methods.

They further observed that teachers' previous

experience with computer spreadsheet programs did not significantly affect the post-test scores.

A study to evaluate the effectiveness of computer-assisted instruction was conducted by Steinick (1985). The experimental design included a sample of 288 Iowa instructors of vocational agriculture who participated in the microcomputer workshop conducted by the Agricultural Education Department at Iowa State University.

The computerized instruction consisted of participants utilizing a microcomputer and spreadsheet program that included a swine ration analysis template. All participants were able to take the same program home for their own teaching purposes.

Results of the study indicated that the conventional instructional method was superior when compared to the computer-assisted instruction. This was inconsistent with findings from a similar study made by Russell (1984). He observed that neither method seemed to be superior to the other.

There has been little or no research on the effects of computer/VCR interactive learning programs on non-formal, adult learning.

METHOD OF PROCEDURE

This investigation was based upon the effectiveness of computerized/VCR instruction compared to conventional teaching methods such as lecture and questioning for non-formal, adult learners. Adult learners were defined as students who were not full-time and were not receiving college credit for their studies or class participation. They were characterized as having the ability to leave the program at any time that subject matter or teaching methods became unsatisfactory.

Special tools used for the experiment included: MS-DOS computers, IBM's Private Tutor Version 2.00 software, a videocassette recorder (VCR), video monitors, and a videotape prepared by the Kansas City Board of Trade (KCBT). Lessons on agricultural futures hedging and agricultural futures options were prepared that were compatible with the hardware and software mentioned above.

Using lessons on agricultural futures options gave the experiment two advantages. First, agricultural options were new enough for prospective students to have high interest and curiosity in them. Second, most potential students had only an awareness of agricultural options which provided the opportunity for both the experimental and control groups to be on about the same knowledge level

as they entered the experiment.

Outline of Procedure Followed in Conducting the Investigation

I. Lesson plans were written on agricultural futures options that included interactive learning techniques: text, true-false questions, fill-in-the-blank, matching, hints, and loop branching (to cover material not understood).

The lessons were written on agricultural futures hedging and agricultural futures options and provided interactive instruction and testing on the following subjects:

- A. Introduction (text only)
- B. Agricultural Futures Hedging Basics
- C. Agricultural Futures Hedging Mechanics
- D. Agricultural Futures Options Basics
- E. Agricultural Futures Options Mechanics
- F. KCBT Videotape (questions only)

Only subjects D, E, and F above were used for the experiments. All subjects were available to students if they chose to use them.

II. A video-tape of the Kansas City Board of Trade showing futures trading activity and other general information of the Board was secured and used as part of the experiment.

III. Editing was conducted in order to enhance the movement between screens and assure interactiveness of the computerized/VCR interactive lessons of agricultural futures options.

IV. Overhead transparencies were developed for the conventional instruction (lecture and questioning), by copying the informational text screens of the computerized lessons. Subject matter was the same for both the treatment and the control group (conventional).

V. Three groups of nonformal adult students were selected to participate in the study. One group was a farm business management class at an area vocational-technical school that met in December, 1985. Another group consisted of several vocational agriculture young farmer classes that met February 13, 1986, in a joint meeting sponsored by Oklahoma Cooperative Extension Service. A third group consisted of farmers invited to an educational meeting on futures options and were not a structured group. The groups were randomly divided into the "Randomized Solomon Four-Group Design" (Van Dalen, 1979, pp. 252-255).

VI. Pre-tests were developed and administered to a randomized one-half of both the experimental (receiving computerized/VCR instruction) and control groups (receiving lecture and questioning instruction). See Appendix A.

VII. In order to ensure that quality control was

maintained in the experiment, two instructors were used simultaneously. One instructor was with the experimental group to respond to questions regarding physical use of the computerized lessons' hardware and software. The other instructor, author of the computerized/VCR lessons, taught the conventional lecture and questioning method to the control group. Thus, subject matter and instructional quality were further standardized between the experimental and control groups.

VIII. Post-tests and additional information questionnaires were completed by all experiment participants. Scores and additional information were tabulated for each individual (see Appendix B).

IX. Analysis of covariance was conducted to test hypotheses and increase validity by taking into account the various backgrounds of students when comparing test scores. Also, the interaction effect of the treatment with the pre-test was ascertained.

Hypotheses Tested

H_{01} There was no difference between nonformal adult student pre-test and adjusted post-test scores in computerized/video assisted instruction on agricultural futures options.

H_{02} There was no significant difference in ability

or preparation between participants who had the treatment and those who had conventional instruction.

H_{03} There was no interaction between the pre-test and the experimental treatment.

Experimental Design

The Randomized Solomon Four-Group Design was used to overcome problems of external validity that may have occurred in other experimental designs. This was accomplished by accounting for interaction of pre-testing and the treatment (computerized/VCR instruction).

A requirement of the design was that the experiment participants be randomly assigned to the four groups. This was accomplished by allowing them to draw numbered tokens of equal size and shape and then matching the numbers to those retrieved from a random number generator. Group 1 had no treatment (conventional instruction was given) and no pre-test. Group 2 had no treatment but did have a pre-test. Group 3 had the treatment but no pre-test. Group 4 had both the treatment and the pre-test. This process can be observed in Table 1.

The four-group design enabled an experiment to assess both the main effects of the treatment and the interaction effect of pre-testing with the treatment (Van Dalen, 1979 p. 253). The experiment was actually completed twice

Table 1. Randomized Solomon Four-Group Design

Group	Pre-test	Treatment	Post-test	Difference
1. (R) Unpre-tested			T_2	$1D=U$
2. (R) Pre-tested	T_1		T_2	$2D=T_1+U+I_{T_1}U$
3. (R) Unpre-tested		X	T_2	$3D=X+U+I_XU$
4. (R) Pre-tested	T_1	X	T_2	$4D=T_1+X+U+I_{T_1}X+I_{T_1}U+I_XU+I_{TX}U$

D = difference between T_1 and T_2				
I = interaction effects of variables				
R = randomized				
T = pre-test				
T_1 = pre-test				
T_2 = post-test				
U = uncontrolled events				
X = treatment				

simultaneously (once with pre-tests and once without pre-tests). To find the values, Group 1, which had neither treatment nor pre-test, was examined. Since the difference (D) between T_2 and "inferred" T_1 scores equals only uncontrolled events (U), the experiment was able to ascertain the main effect of U. Remaining values were $3D - 4D = X$; $2D - 1D = T$; $1D - 2D - 3D + 4D = I_{TX}$. Inferred T_1 scores were the mean of the actual pre-test scores of all given the pre-test.

Basic Assumptions of the Experiment

The material presented in the interactive learning package was appropriate and necessary for producers who want to use agricultural futures options as a means to limit price risk for agricultural commodities.

Both the experimental treatment and the conventional instruction represented the same subject matter quality.

Statistical Analysis of Data

The t-test was used to test between replications. Analysis of covariance was used to determine whether performance was different between the treatment and control. The alpha level was .05 for all statistical procedures.

Scope of the Investigation

The experimental design of this investigation limited generalization to future experiments due to circumstances that are congruent and are unlikely to be exactly duplicated. Generalization to other nonformal, adult learners is limited.

FINDINGS

The purpose of this study was to determine if non-formal adult students learn at a different level when taught by computer/video assisted instruction when compared to a conventional approach such as lecture with questions and overhead projections. Findings related to this purpose are presented in this chapter under the following headings: Analysis of Demographic Factors, Reliability of Test Instrument, Comparison of Instructional Approaches, and Major Findings.

Analysis of Demographic Factors

The study was conducted as an experiment utilizing computer/video aided instruction. There were eight female (13.3 percent) and fifty-one male (85.0 percent) participants, and one participant who did not respond to the question on gender. These observations were made based on data presented in Table 2. It was further observed that of these 60 persons, thirty-three (55 percent) were taught by computer assisted instruction and twenty-seven (45 percent) were taught by conventional methods.

Three locations were selected as setting in which to conduct the experiment. The numbers of participants at each of the locations were as follows: Wayne--19, Enid--21, and Cherokee--20.

Table 2. Frequency statistics of nominal variables

Variable	Variable descriptor	Frequency	Percent
Group	Treatment	33	55.0
	Conventional	27	45.0
	Total	60	100.0
Gender	Male	51	85.0
	Female	8	13.3
	No Response	1	1.7
	Total	60	100.0
Agricultural Instruction	Yes	30	50.0
	No	28	46.7
	No response	2	3.3
	Total	60	100.0
Advanced Marketing Training	Yes	16	26.7
	No	43	71.7
	No response	1	1.7
	Total	60	100.0
Training in Options, Hedging, etc.	Yes	6	10.0
	No	53	88.3
	No response	1	1.7
	Total	60	100.0
Wanted Computer Courses	Yes	7	11.7
	No	52	86.7
	No response	1	1.7
	Total	60	100.0
Wanted Software Copy	Yes	23	38.3
	No	36	60.0
	No response	1	1.7
	Total	60	100.0
Number of Participants at Each Location	Enid	21	35.0
	Cherokee	20	33.3
	Wayne	19	31.7
	Total	60	100.0

One-half of the participants (thirty) had had instruction in vocational agriculture while attending high school. Sixteen participants (26.7 percent) had had advanced marketing training which consisted of seminars and/or other educational workshops in which specific lessons on agricultural futures hedging were conducted.

Data presented in Table 3 revealed that the age of the participants ranged from 13 years to 65 years. Average age of the participants was approximately 41 years with a standard deviation of 12.18 years. Family size of participants ranged from 1 to 7 members with a mean of 3.5 and a standard deviation of 1.5.

The number of years of formal education completed by the participants averaged 14.8 years with a standard deviation of 2.61 years. The years of formal education range minimum (eight years) was a statistical outlier as was the range maximum (20 years of formal instruction).

Table 3. Descriptive statistics of ordinal variables

Variable	N	Mean	Standard devia- tion	Range	
				Mini- mum	Maxi- mum
Age	60	40.85	12.18	13.0	65.0
Formal education	60	14.80	2.61	8.0	20.0
Family size	60	3.51	1.49	1.0	7.0

Reliability of Test Instrument

The Kuder-Richardson 20 (KR_{20}) reliability test was applied to both the pre-test and post-test instruments. Results of the post-test are presented in Table 4. The reliability coefficient for the post-test was found to be .70. The pre-test KR_{20} reliability coefficient was .50. Analysis of the test items revealed that 28 items were discriminatory. Two items were observed to be nondiscriminatory.

Comparison of Instructional Approaches

When comparing the two instructional approaches, hypotheses were formulated to test for differences between approaches.

H_{01} -- There was no difference between non-formal adult student pre-test and adjusted post-test scores in computerized/video assisted instruction on agricultural futures options.

Data in Table 5 compare pre-test and post-test mean scores for all participants. The pre-test raw scores ranged from a low of 6 to a high of 26. The pre-test mean was 18.31 with a standard deviation of 4.59. Post-test scores ranged from 9 to 29, and the mean score was 20.58 with a standard deviation of 4.80.

Tests were conducted to determine if the post-test mean

Table 4. Item analysis and reliability of post-test

Test item number	Test answering correctly	Item diffi- culty	Discrimina- tion
1	50	83	0.08
2	19	32	0.11
3	31	52	0.40
4	30	50	0.27
5	50	83	0.08
6	42	70	0.31
7	57	95	0.21
8	55	92	0.28
9	30	50	0.22
10	34	57	0.36
11	11	18	-0.10 ^a
12	39	65	0.18
13	51	85	0.43
14	29	48	0.14
15	25	42	0.23
16	60	100	0.00 ^b
17	28	47	0.32
18	52	87	0.56
19	39	65	0.29
20	22	37	0.39
21	57	95	0.40
22	46	77	0.57
23	52	87	0.75
24	59	98	0.13
25	42	70	0.61
26	39	65	0.53
27	53	88	0.33
28	49	82	0.50
29	49	82	0.53
30	52	87	0.64

KR₂₀ reliability = .70

^aItem has negative correlation between high scores and the correct response.

^bItem does not discriminate between exam participants.

Table 5. Pre-test and post-test mean scores and test score ranges

Instrument	N	Mean	Standard devia- tion	Test score range	
				Mini- mum	Maxi- mum
Post-test	60	20.58	4.80	9.0	29.0
Pre-test	30	<u>18.31</u>	4.59	6.0	26.0
Difference		2.27			

of 20.58 was significantly different from the pre-test mean of 18.31. The Randomized Solomon Four-Group design eliminates some effects of uneven distribution of participant characteristics. Analysis of covariance was used to equate these characteristics when testing for difference between means.

As is indicated in Table 6, the adjusted mean (21.82) for the treatment (computerized/video instruction) group was not significantly different from the adjusted mean (19.77) for the control (conventional instruction) group. The F-probability for main effects was .285 causing failure to reject the null hypothesis at the .05 level.

H₀₂ -- There was no significant difference in ability or preparation between participants who had the treatment and those who had conventional instruction.

A regression was run with post-test mean scores as the

Table 6. Analysis of covariance for post-test differences, controlling pre-test, education, age, location, sex and agricultural instructions

Source of variation	Degrees of freedom	Sum of squares	Mean square	F	Significance of F
Covariates (total)	7	369.333	52.762	6.869	0.000
Pre-test	1	112.832	112.832	14.690	0.001
Educational achievement level	1	77.468	77.468	10.086	0.005
Age	1	18.817	18.817	2.450	0.132
Gender	1	20.274	20.274	2.639	0.119
Agricultural instruction	1	39.344	39.344	5.122	0.034
Cherokee location	1	39.198	39.198	5.103	0.035
Enid location	1	6.743	6.743	0.878	0.359
Main effects					
Treatment	1	9.233	9.233	1.202	0.285
Explained (Main plus covariates)	8	378.565	47.321	6.161	0.000
Residual	21	161.301	7.681		
Adjusted post-test means ^a					
Control	19.77				
Treatment	21.82				

^aAfter controlling covariates.

dependent variable. This test validated independent variables that could affect an individual's scores. Results of the regression analysis are presented in Table 7a. Possible candidates, based on the alpha values, included: pre-test scores, educational level, sex, high school agricultural instruction, and location (Enid or Cherokee). Several of these variables were used in an analysis of covariance test of pre- and post-test group means. The results of this test are presented in Table 7b.

The covariate that had a significant effect on individual's post-test scores was educational achievement level (F -value = 15.12). Based on these tests, the null hypothesis was rejected at the .05 level. The conclusion was drawn that

Table 7a. Regression coefficients using post-test as the dependent variable

Independent variable	Statistical values		
	Beta	T	Alpha
Pre-test scores	0.454	3.428	0.003
Treatment	2.230	1.573	0.135
Educational achievement level	0.659	2.044	0.058
Age	0.064	1.125	0.277
Gender	-5.246	-2.405	0.029
Family size	-1.123	-0.278	0.785
Agricultural instruction	4.675	2.649	0.018
Advanced marketing training	1.605	1.163	0.262
Experience with option, etc.	-1.038	-0.239	0.814
Enid location	3.386	2.143	0.048
Cherokee location	4.460	2.957	0.009

Table 7b. Analysis of covariance between post-test and pre-test means controlling for treatment, education, age, and location

Source of variation	Degrees of freedom	Sum of squares	Mean square	F	Significance of F
Covariates (total)	4	167.633	41.908	5.332	0.012
Treatment	1	2.454	2.454	0.312	0.588
Educational achievement level	1	118.858	118.858	15.121	0.003
Age	1	0.036	0.036	0.005	0.947
Cherokee location	1	6.378	6.378	0.811	0.387
Main effects					
Pre-test	15	334.098	22.273	2.834	0.044
Explained	19	501.731	26.407	3.360	0.022
Residual	11	86.463	7.860		

there were significant differences between pre- and post-test group means and that learning had taken place in the treatment and control groups.

The key advantage of Randomized Solomon Four-Group Designs over other pre-test/post-test designs is that possible interaction of the pre-test with the treatment can be detected and statistically corrected. In order to make this correction, the following hypothesis was generated and tested.

H_{03} -- There was no interaction between the pre-test and the experimental treatments.

Figure 1 presents the Randomized Solomon Four-Group design and aids in comprehension of how to test for inter-activeness.

An analysis of covariance was run using a binary variable (0 = no pre-test, 1 = pre-test) to indicate whether individual participants took pre-tests. Table 8 reveals findings of that analysis. Resulting means were: control-no pre-test (20.5); treatment/no pre-test (19.56); control/pre-test (19.77); and treatment/pre-test (21.82). Differences among these means were not significant at the .05 level. The hypothesis was not rejected and it was concluded that participant group pre-test means were not significantly different.

Using analysis of covariance across pre-test score

<p>NO PRE-TEST</p> <p>NO TREATMENT (CONTROL)</p>	<p>NO PRE-TEST</p> <p>TREATMENT</p>
<p>PRE-TEST</p> <p>NO TREATMENT (CONTROL)</p>	<p>PRE-TEST</p> <p>TREATMENT</p>

Figure 1. Schematic of Randomized Solomon Four-Group design

Table 8. Analysis of covariance for post-test differences between treatment and control groups each divided between those with pre-tests and those without pre-tests, controlling education, age, location, options, and vo-ag

Source of variation	Degrees of freedom	Sum of squares	Mean square	F	Significance of F
Covariates	5	384.938	76.988	4.184	0.003
Educational achievement level	1	228.316	228.316	12.408	0.001
Age	1	9.641	9.641	0.524	0.473
Cherokee location	1	123.345	123.345	6.704	0.013
Options, etc. experience	1	9.366	9.366	0.509	0.479
Agricultural instruction	1	39.988	39.988	2.173	0.147
Main effects	2	16.442	8.221	0.447	0.642
Treatment	1	15.918	15.918	0.865	0.357
Pre-test	1	0.768	0.768	0.042	0.839
2-way interactions (Treatment x pre-test)	1	1.451	1.451	0.079	0.780
Explained	8	402.830	50.354	2.737	0.014
Residual	49	18.400			
Adjusted means					
No pre-test	Control = 20.5, Treatment = 19.56				
Pre-test	Control = 19.77, Treatment = 21.82				

levels, post-test scores were adjusted to reflect differences in abilities and preparation of participants. Table 9 reveals original post-test scores, and adjusted mean differences. A positive adjusted mean difference was observed for all but three pairs of means. No negative values occurred. As was pointed out earlier, no significant difference in learning between instructional methods was observed, leading to the conclusion that learning occurred from both methods equally.

Table 9. Post-test, adjusted post-test,^a and pre-test scores, adjusted score differences, and frequencies

Post-test	Adjusted post-test	Pre-test	Adjusted differences	Frequency
9	15.00	6.00	9.00	1
11	22.00	9.00	13.00	1
12	16.00	11.00	5.00	1
13	13.00	13.00	0.00	1
15	18.00	14.00	4.00	2
16	17.50	15.00	2.50	2
17	17.00	16.00	1.00	1
18	20.00	17.00	3.00	2
19	20.20	18.00	2.20	5
20	22.25	20.00	2.25	4
21	24.33	21.00	3.33	3
22	23.33	22.00	1.33	3
23	23.00	23.00	0.00	1
24	25.50	24.00	1.50	2
25	29.00	25.00	4.00	1
26	26.00	26.00	0.00	1

^aAdjusted for covariates.

Further statistical analysis of pre-test, post-test, and mean score differences was made by educational achievement level of the participants. Results of these analyses are presented in Table 10. The three educational categories were broken down as follows: (1) high school diploma or less; (2) between high school diploma and college bachelor's degree; and (3) graduate or professional study beyond the bachelor's degree. The greatest pre- post-test mean score difference was observed for those participants with a high school diploma or less. The smallest mean difference was observed for participants with from 13 to 16 years of education. Analysis of variance tests for differences among pre-test and post-test group means revealed significant differences. Scheffé's post-hoc test revealed that the pre-test and post-test mean scores for the "Up through 12 years" group were different from the group mean scores of the other two groups.

Pre-test, post-test and mean differences were grouped according to participant age group and are presented in Table 11. Participants 25 years old and under and between the ages of 36 and 45 had the lowest mean differences. However, these two groups also exhibited the highest pre-test scores.

Data in Table 12 reveal pre-test and post-test group means and mean differences by setting in which the study

Table 10. Pre-test and post-test mean scores by educational level of experiment participants and mean score differences

Educational achievement level		Pre-test	Post-test	Difference
(1) Up through 12 years	M^a N^b	12.50 6	17.64 6	5.14
(2) 13 through 16 years		19.78 18	21.28 18	1.50
(3) 17 through 20 years		19.33 6	23.67 6	4.34
F - value		5.350	4.791	
F - probability		0.014	0.023	

a_M = mean.

b_N = frequency.

Table 11. Pre-test and post-test mean scores and mean differences by age level

Age level		Pre-test	Post-test	Difference
25 and under	M^a N^b	20.33 3	21.67 3	1.34
26 through 35		16.63 8	20.13 8	3.50
36 through 45		21.11 9	22.89 9	1.78
46 through 55		17.63 6	20.83 6	3.20
56 through 65		14.75 4	17.75 4	3.00
F - value		0.821	1.515	
F - probability		0.527	0.245	

a_M = mean.

b_N = frequency.

Table 12. Pre-test and post-test means and mean differences by setting

Setting		Pre-test	Post-test	Difference
Nonstructured (Cherokee)	M ^a N ^b	17.00 9	21.89 9	4.89
Structured (Wayne and Enid)		18.76 21	20.52 21	1.76
F - Value		0.411	4.586	
F - Probability		0.529	0.048	

^aM = mean.

^bN = frequency.

was conducted. Those participants who were enrolled in the class at Cherokee had a lower pre-test mean score and a higher post-test mean score and a greater mean difference than did those who had participated at Wayne or Enid. A significant difference was observed between nonstructured and structured post-test mean scores.

Previous agricultural instruction did not make much difference in pre-test, post-test and pre- post-test mean score differences as is reflected in Table 13. Participants who had enrolled in vocational agriculture while in high school had the highest group mean.

Past experiences in agricultural futures options hedging, futures hedging, or futures speculation did seem to have an impact on participants' pre- and post-test mean

Table 13. Pre-test and post-test means and mean differences by presence or absence of vo-ag instruction

Agricultural instruction		Pre-test	Post-test	Difference
Absence	M^a N^b	17.20 10	19.60 10	2.40
Presence		18.75 20	21.60 20	2.85
F - Value		1.023	1.700	
F - Probability		0.324	0.211	

aM = mean.

bN = frequency.

scores. This observation is based on the mean score differences. A greater difference between group means was observed for those participants who had had experiences in options hedging, futures hedging, and futures speculation. These generalizations are based on data presented in Table 14.

An interaction of level of educational achievement and pre-test score level was analyzed since both significantly influenced post-test mean scores. Results of this analysis are presented in Table 15. Participants with 12 to 16 years of education had the lowest group post-test mean score. Those participants with the highest levels of education had the highest post-test group means and mean differences.

Table 14. Pre-test and post-test means and mean differences by presence or absence of previous options hedging, futures hedging or futures speculation

Experience with: Options, futures, speculation		Pre- test	Post- test	Differ- ence
Absence	M^a N^b	18.38 29	20.93 29	2.55
Presence		14.00 1	21.00 1	7.00
F - Value		0.460	0.005	
F - Probability		0.505	0.945	

a_M = mean.
 b_N = frequency.

Table 15. Post-test means by interaction of pre-test scores and educational level

Pre-test score level		Educational achievement level		
		Up through 12 yrs.	12 through 16 yrs.	17 through 20 yrs.
0 through 17	M^a N^b	17.40 5	15.50 4	22.50 2
18 through 22		16.00 1	21.80 10	23.67 3
23 through 30		-- 0	25.75 4	26.00 1

a_M = mean.
 b_N = frequency.

Major Findings

1. Learning had occurred for both the control and experimental groups.
2. No significant difference in the level of learning occurred between the two instructional groups.
3. Differences in post-test score means could be detected by variation in pre-test scores, educational achievement level, and whether participants were taught at the Cherokee location.
4. Mean differences could be corrected by covariates: pre-test, educational achievement level, and Cherokee location.

DISCUSSION

The purpose of this study was to determine if nonformal adult students learn at a different level when taught by computer/video assisted instruction when compared to a conventional approach such as lecture with questions and overhead projections.

Reliability of the post-test instrument was observed to be .70. This coefficient is above the level that Borg and Gall (1983) stated as the minimum reliability acceptable (.56 to .66) for instruments that measure increased knowledge. The pre-test reliability was .50. This lower value was probably attributed to the fact that several participants failed to mark any response on the pre-test. The main difference between the pre-test and the post-test was a general re-ordering of questions within each section of the instruments (see Appendices A and B).

The test instrument item analysis that was conducted indicated that most test questions were discriminatory. Data in Table 4 revealed that test Item 11 had a negative correlation between high scores and correct responses. Item 16 revealed no discrimination between post-test participants since all answered the question correctly. Only two other test items (one and five) had correlations below +.10. Instrument reliability strengthens the study and helps to

compensate for the limited number of observations.

One strength in the investigation procedure was the control provided by utilizing the computerized lessons author to teach the nontreatment group. Subject matter and teaching style were very much alike for both treatment and control groups. Overhead projections used in the control group were copies of actual computer screens viewed by treatment participants.

A second strength in the investigation was choice of lesson topics. Agricultural futures options is a relatively new concept and curiosity is high for innovative agricultural producers. Also, most producers are at an awareness stage about the concept; varying knowledge levels of options did affect post-test means.

On the other hand, since agricultural futures options introduced many unfamiliar terms, participants often became confused about which term matched which definition.

Another strength of the investigation was how the lessons were written. Several participants commented on how they enjoyed the rewards and humor built into the question-and-answer portions of the computerized lessons. Graphics and music were other positive attributes that participants said added to lesson effectiveness by helping to keep their interest high.

The procedures could have been strengthened by

administering the experiment at the same location and at the same time. Also, a larger sample size would have eased statistical requirements. Possibly, when a greater number of more standardized computers are available, these procedures could be implemented. At this time, securing enough microcomputers for experimental instruction is difficult when the setting is rural.

Individual computerized lessons took too long. This may have negated the intrinsic benefit of computerized instruction of allowing students to work at their own pace. Another problem encountered may have been that fitting the interactive learning to individual schedules could not be measured by the procedures in this investigation.

The analysis of covariance used to test investigation hypotheses appeared to analyze the influence of other factors on the achievement of the participants. It added strength to the Randomized Solomon Four-Group Design by accounting for participant differences. In this way, grouped post-test means were not different due to chance alone.

Overall, the procedures used provided adequate control and sufficient analysis to justify findings and conclusions. Analysis of covariance explained mean differences at the .05 alpha level. These analyses included the effects of influencing covariates: pre-test scores, educational achievement level, previous agricultural instruction, and setting

(Cherokee). In addition, main effects and two-way interactions of treatment and pre-test could be analyzed and were judged to not significantly effect post-test score means.

Other components of the experimental design proved satisfactory. Treatment and control groups completed testing and instruction at approximately the same time. Generally, participants seemed to be satisfied with the instruction they had received.

This investigation was unique in that the participants were not "captive." That is, unlike most studies involving computer-assisted instruction, the adult participants could leave any time that subject matter and/or teaching methods became unsatisfactory. No penalty could accrue such as lower grades or incomplete course credit.

Objective One of the investigation addressed whether computerized instruction could help nonformal adult groups learn advanced marketing techniques. Data in Table 9 revealed that learning had occurred for the participants who took both pre-tests and post-tests. The group was not divided by treatment and control since it was observed that there was no significant difference in learning (Tables 6 and 8).

Results of this study are consistent with a study by Trede et al. (1985). Their study consisted of adults using a computer spreadsheet program. Steinick (1985) found some difference in a study of another group of adults. Although

interactive learning packages were not used, comparison was made since both agricultural topics and adult learners were involved in the investigations.

Since it cannot be stated that computer/video assisted instruction is either superior or inferior to conventional instruction, intrinsic benefits of the computer/video assisted method need to be weighed. These considerations include:

Is time flexibility of computer/video based learning helpful?

Is individual pace important to the targeted audience?

Can individualized instruction be accomplished by using computer/video based instruction?

Is computer availability satisfactory for this instructional method?

Does the inherent interactive effect of computer-based instruction make it superior to other methods?

Does computer-assisted instruction stimulate students' learning?

Is learning time reduced?

Are there other important intrinsic benefits of this method of instruction?

Objective Two dealt with how demographic factors affected adults' learning of agricultural marketing topics.

Educational achievement level divided participants into three groups. The first group of "up to 12 years of formal schooling" represented a high school diploma and less. The second group consisted of those whose formal

training was 13 to 16 years and represented those participants who typically had more than a high school diploma and at least some post-secondary schooling. Participants with 17 to 20 years of educational achievement typically had graduate and/or professional training beyond the bachelor's degree.

Both pre-test and post-test means were significantly different at the .05 level when partitioned by the above-mentioned educational achievement levels. The largest difference was between pre-test scores of the "high school only" group when compared to the two groups with some post-secondary training. This group experienced the most learning (5.14 difference between the pre-test and post-test group mean scores).

It is interesting to note that the group with the least difference between pre-test and post-test mean scores were those which had had post-secondary training of a bachelor's degree or less. This could be due to the fact that many agricultural producers received some marketing training while in college. The graduate and professional group may have specialized so much in their training and their training may not have included the study of agricultural marketing concepts.

An examination of data in Table 11 revealed that there was no significant difference between the pre-test and

post-test means when divided into age groups.

One of the most interesting findings to come out of this study was the effect of setting on post-test mean scores. At the .05 alpha level, there was a significant difference between scores of those who participated in Cherokee and those in either of the other two locations (Table 12). The main difference that can be found at that location was structure of the educational program. At Wayne and Enid, participants were part of structured, although nonformal, adult groups. The agricultural futures options lessons were only part of a three-year or longer curriculum. At Cherokee, all participants were there specifically for training in options. In other words, the effectiveness of the lesson was increased when the students had interest in the subject matter being taught.

Previous high school agricultural training did not make a significant difference in either pre-test or post-test scores. The difference in learning was likewise insignificant.

Past experience in using options or futures to hedge or speculate did appear to affect pre-test and post-test scores. It should be noted that of the group who had no past experience in using options or futures consisted of only one observation.

The interaction effect of educational achievement and

pre-test score levels on post-test score means was examined. Those with less formal education and lower pre-test scores generally scored lower on the post-test than did any other group. The largest group (10) fell in the middle of both educational achievement and pre-test score levels. None of the participants in the lowest educational achievement level scored in the highest pre-test score level.

Post-test mean scores were affected at the .05 significance level when the influence of pre-test scores, educational achievement level, and setting (Cherokee) were negated. These factors were used as covariates. In this way, treatment and control groups become more equal by accounting for certain characteristics that may have been skewed by chance selection.

Many comparative studies concluded that computer-assisted instruction was as good as or better than conventional instruction (Deignan and Durcan, 1978; Gershman and Sakomoto, 1981; Hallworth and Brebner, 1980; Kearsley, 1976; Magidson, 1978; Paden et al., 1977; Watt, 1980). Gleason (1981) stated that it was difficult to find significant differences between computer-assisted and other teaching methods. Results from this study seemed to concur more with Gleason's findings. Although learning occurred with both treatment and control groups, it cannot be concluded that either instructional method was a better method to use to

teach adults about agricultural marketing.

Both age and years of formal education appeared to be fairly uniform. Two-thirds of the participants were within 24 years of the youngest and oldest participant. The same ratio of participants had within five years of the same amount of schooling. While education seemed to have an effect on post-test score means, it could not be concluded that age had an effect.

Post-test scores did tend to move with pre-test scores. This is probably an indication of variation in preparedness of participants as they entered the experiment. The effects were accounted for by using analysis of covariance.

Computer/video assisted instruction can be just as effective as conventional instructional methods. The decision to use the computer for interactive learning by adults in nonformal setting should be based on intrinsic benefits such as time, flexibility, individual pace, individualized instruction, expert instruction, inherent interactiveness, and student interest stimulation.

The findings of this investigation suggest the following guidelines when writing computer/video instructional materials.

Individual lessons should consist of less than 30 informational screens and should take 20 minutes or less to complete by students.

Interactiveness of lessons should be well-planned and

occur frequently.

Graphics and music seem to enhance lessons by keeping student interest high.

Lessons and curricula should be targeted to specific audiences.

Lessons should be written on formats that may be read by many computers that are being used by the targeted audience.

Examples used in lessons should be realistic and locally applicable.

Lessons should be written that take students beyond basics and mechanics of the lesson topic into application.

Computer lessons should include instructions on how to operate the computer for the specific lesson use.

Immediate feedback enhances students' security in being able to proceed with the lesson.

Subject matter should be timely in order to generate nonformal adults' interests.

Recommendations for further research include study-

ing:

The effects of previous computer exposure on learning with computer/video based instruction.

The effect of computer/video based instruction on speed of learning for a nonformal adult audience.

The effectiveness of other agricultural topics using computer/video assisted instruction for a nonformal adult audience.

SUMMARY

The purpose of this study was to determine if nonformal adult students learn at a different level when taught by computer/video assisted instruction when compared to a conventional approach such as lecture with questions and overhead projections. Specific objectives of the study were to: (1) evaluate the teaching method for its ability to help students learn advanced marketing topics such as agricultural futures options, (2) assess the relationship between selected demographic factors and the ability of adult learners to master marketing topics when taught by an interactive computer-assisted learning package and videotape, and (3) determine the implications of the use of the above instructional technique in adult farmer instructional programs.

Special tools used in the experiment included: MS-DOS computers, IBM's Private Tutor Version 2.00 software, a video-cassette recorder, video monitors, and a video-tape prepared by the Kansas City Board of Trade (KCBT). Agricultural futures options lessons were prepared that were compatible with the above-mentioned hardware and software.

Interactive lessons on agricultural futures hedging and agricultural futures options were written by the investigator. Computer/video assisted futures options lessons were presented to the treatment group at Wayne, Enid, and

Cherokee, Oklahoma.

A video tape showing futures trading activity at the Kansas City Board of Trade was shown to the participants. Overhead transparencies that emulated the computer screens enhanced the lecture and questioning instruction of the control group.

Three groups of nonformal adult students were selected to participate in the program. Pre-tests were developed and administered to a randomized one-half of both the treatment and control groups.

Two instructors were used simultaneously to provide instruction on options, hedging, and futures. The author of the computerized lessons taught the control group (conventional instruction). Another instructor taught the treatment group and responded to questions regarding physical use of the computerized lessons.

Post-tests and an additional information questionnaire were completed by all experiment participants and analysis of covariance was conducted to test hypotheses and increase experimental validity.

The Randomized Solomon Four-Group Design was used to overcome problems of external validity found in some studies in which an interaction effect was found between the pre-test and the treatment. The four groups included the following: (1) no pre-test/no treatment; (2) pre-test/no

treatment; (3) no pre-test/treatment; and (4) pre-test/treatment.

Fifty-one (85.0%) of the study participants were male and eight (13.3%) were female. Thirty participants had been involved in previous agricultural instruction, and sixteen (26.7%) had had previous advanced marketing training.

The mean age of the participants was 40.9 years, and the average participant family size was 3.5 members. The participants had, as a group, completed an average of 14.8 years of formal education.

The Kuder-Richardson 20 (KR_{20}) test was used to test the validity for both the pre- and post-tests. The reliability coefficient for the pre-test was .50 and the post-test was .70.

The pre-test mean score for all participants was 18.31 out of a possible 30. The post-test mean score for all participants was observed to be 20.58. Comparisons of pre-test and post-test group means revealed that the post-test mean score for both the control and experimental groups were higher than the pre-test group means. Group pre-test mean scores were observed to be significantly different; however, these differences did not carry over to the post-test mean scores or the differences between pre- and post-test mean scores for each group.

Regression analysis of variables using post-test mean

as the dependent variable revealed (based on the alpha values) that pre-test score, educational level, sex, high school agricultural instruction, and location (Enid or Cherokee) accounted for the majority of variance among group means. Analysis of covariance tests selecting the above variables as covariates did not provide significant differences between the treatment and control group mean scores.

Significant differences were observed between experimental and control group pre- and post-test mean scores when grouped according to educational background of the participants. Pre-test and post-test group means for those participants with up through 12 years of schooling (12.5 and 17.6, respectively) were significantly different from those participants who had from 13 to 16 years (19.8 and 21.3, respectively) and those with 17 through 20 (19.3 and 23.7, respectively) years of education.

Conclusions drawn by the investigator were that there was no significant difference in learning between computer/video assisted instruction, and conventional lecture and questioning for nonformal adult groups. In order to determine whether to use the "high-tech" teaching method, intrinsic benefits of computerized learning need to be studied. Intrinsic benefits may include: flexibility; individually paced, individualized instruction; larger audiences; inherent interactiveness; student stimulation; and

others.

The findings of this investigation suggest the following for writing computer/video assisted lessons.

Lessons should consist of less than 30 informational screens and take 20 minutes or less to complete by students.

Interactiveness of lessons should be well-planned and occur frequently.

Graphics and music should be used to enhance lessons.

Lessons and curricula should be targeted to specific audiences.

Lessons should be written on formats that may be read by many computers that are used by the target audiences.

Examples used in lessons should be realistic and locally applicable.

Lessons should be written that take students beyond basics and mechanics of the lesson topic and into application.

Computer lessons should include instructions on how to operate the computer for the specific use.

Immediate feedback should be used to enhance students' security in being able to proceed with the lesson.

Subject matter should be timely in order to generate nonformal adults' interest.

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APPENDIX A. PRE-TEST

```

*****
***** 1985 FUTURES OPTION LESSON *****
*          PRE-TEST          *
*****

```

Code _____

The following questions are used to determine the effectiveness of the teaching methods provided by the computer/VCR. All of the answers will remain confidential and anonymous. You will be asked to respond to a post-test, also.

Please place a "T" for true statements and an "F" for false statements.

- _____ 1. Buyers and sellers discover prices of commodities such as wheat at the Kansas City Board of Trade by public outcry in the pits.
- _____ 2. The Kansas City Board of Trade deals ONLY with "Hard Red Winter Wheat."
- _____ 3. Upon "exercise" the buyer of an options CALL acquires a LONG futures position.
- _____ 4. A futures option can be exercised at any time prior to expiration.
- _____ 5. A grain producer can protect against declining commodity prices by purchasing a put.
- _____ 6. Funds must be deposited to a margin account by the option buyer immediately after purchase of an option.
- _____ 7. Premiums for options are arrived at through competition between buyers and sellers.

Please select the BEST choice and enter the letter in the blank beside the question number.

- _____ 8. "A promise between a buyer and a seller to conduct business at some future date at a price agreed upon now" is called a _____ contract.
- a. options
 - b. futures
 - c. commodity
 - d. all of the above
- _____ 9. What kind (classification) of wheat is traded at the Kansas City Board of Trade?
- a. Soft Winter Wheat
 - b. Spring Wheat
 - c. Hard Winter Wheat
 - d. Durum Wheat
- _____ 10. What is the term used to describe the method in which agricultural producers and merchants AVOID price risk by using the futures market?
- a. futures
 - b. forward contract
 - c. speculate
 - d. hedge
- _____ 11. What type of risk does Wheat futures hedging decrease?
- a. financial
 - b. price
 - c. production
 - d. management
- _____ 12. Futures prices and cash prices tend to move in _____ direction(s).
- a. unrelated
 - b. the opposite
 - c. the same
 - d. delta
- _____ 13. Which group below does NOT assume risk in futures transactions?
- a. hedgers
 - b. floor traders
 - c. speculators
 - d. anyone without inventory
- _____ 14. When did Futures trading in Kansas City have its beginnings? During the _____
- a. 1840s
 - b. 1850s
 - c. 1860s
 - d. 1870s
- _____ 15. Every commodity futures option transaction involves:
- a. exercise
 - b. both a put and call
 - c. both a buyer & seller
 - d. "a", "b", AND "c"

- _____ 16. A futures option can be exercised by:
- a. the option seller
 - b. the option buyer
 - c. both buyer & seller
 - d. either the buyer OR seller
- _____ 17. The holder (buyer) of a futures option can:
- a. exercise the option
 - b. sell the option
 - c. allow the option to expire
 - d. choose any of above
- _____ 18. Upon exercise of a futures option, buyers of a PUT:
- a. must pay the premium
 - b. acquire a call
 - c. acquire a LONG position
 - d. acquire a SHORT position
- _____ 19. If a PUT is purchased with a \$3.00 strike price, the option will be in-the-money if the underlying futures price is:
- a. below \$3.00
 - b. above \$3.00
 - c. exactly \$3.00
- _____ 20. Which of the following is NOT an influence on an option's time value?
- a. the option premium
 - b. the time remaining until expiration
 - c. volatility of underlying futures contract
 - d. the short-term interest rate.
- _____ 21. What is the most that an option buyer (holder) can lose if his/her premium is 25 cents/bushel for a PUT with a strike price of \$3.00?
- a. 25 cents per bushel
 - b. \$3.00 per bushel
 - c. \$2.75 per bushel
 - d. unlimited potential loss

Please match the appropriate definition in the right column and below with the options term in the left column and place your response in the blank besides each term.

EXAMPLE:

- | | |
|--|---|
| <p>_____ futures contract</p> | <p>z. a bi-lateral contract that specifies delivery of a certain quality good at a specified time, place, and price</p> |
| <p>22. _____ call option</p> | <p>a. the option purchasing cost</p> |
| <p>23. _____ exercise</p> | <p>b. the specific futures contract described by the option</p> |
| <p>24. _____ expiration date</p> | <p>c. what an option holder does to acquire a futures position at the option strike price</p> |
| <p>25. _____ option buyers</p> | <p>d. the last date that a futures option may be exercised</p> |
| <p>26. _____ option sellers</p> | <p>e. persons obligated to perform according to contract terms</p> |
| <p>27. _____ premium</p> | <p>f. persons who have the right to exercise futures options</p> |
| <p>28. _____ put option</p> | <p>g. a futures option that gives the holder the right to BUY a futures contract</p> |
| <p>29. _____ strike price</p> | <p>h. a futures option that gives the holder the right to SELL a futures contract</p> |
| <p>30. _____ underlying futures contract</p> | <p>i. the futures price at the time the option is purchased; and the price a futures position may be acquired</p> |

APPENDIX B. POST-TEST

```

*****
***** 1985 FUTURES OPTION LESSON *****
***** *      POST-TEST      * *****
*****

```

Code _____

The following questions are used to determine the effectiveness of the teaching methods provided by the computer/VCR. All of the answers will remain confidential and anonymous. You will be asked to respond to a post-test, also.

Please place a "T" for true statements and an "F" for false statements.

- _____ 1. Option premiums are arrived at through competition between buyers and sellers.
- _____ 2. A grain producer can protect against rising commodity prices by purchasing a put.
- _____ 3. Upon "exercise" the buyer of an options CALL acquires a SHORT futures position.
- _____ 4. The Kansas City Board of Trade deals ONLY with "Hard Red Winter Wheat."
- _____ 5. A futures option can be exercised at any time before expiration.
- _____ 6. Funds must be deposited to a margin account by the option buyer immediately after purchase of an option.
- _____ 7. Buyers and sellers discover prices of commodities such as wheat at the Kansas City Board of Trade by public outcry in the commodity exchange pits.

Please select the BEST choice and enter the letter in the blank beside the question number.

- _____ 1. What is the most that an option buyer (holder) can lose if his/her premium is 25 cents/bushel for a PUT with a strike price of \$3.00?
- a. 25 cents per bushel c. \$2.75 per bushel
b. \$3.00 per bushel d. unlimited potential loss
- _____ 2. Which of the following is NOT an influence on an option's time value?
- a. the option premium c. volatility of underlying futures contract
b. the time remaining until expiration d. the short-term rate
- _____ 3. If a PUT is purchased with a \$3.00 strike price, the option will be in-the-money if the underlying futures price is:
- a. below \$3.00 c. exactly \$3.00
b. above \$3.00
- _____ 4. Upon exercise of a futures option, buyers of a PUT:
- a. must pay the premium c. acquire a LONG position
b. acquire a call d. acquire a SHORT position
- _____ 5. "A promise between a buyer and a seller to conduct business at some future date at a price agreed upon now" is called a _____ contract.
- a. options c. both "a" and "b"
b. futures d. neither "a" nor "b"
- _____ 6. The holder (buyer) of a futures option can:
- a. exercise the option c. allow the option to expire
b. sell the option d. choose any of above
- _____ 7. When did futures trading in Kansas City have its beginnings? During the _____.
- a. 1840s c. 1860s
b. 1850s d. 1870s

- _____ 8. Every commodity futures option transaction involves:
- a. exercise
 - b. both a put and call
 - c. both a buyer & seller
 - d. "a", "b", AND "c"
- _____ 9. What kind (classification) of wheat is traded at the Kansas City Board of Trade?
- a. Soft Winter Wheat
 - b. Spring Wheat
 - c. Hard Winter Wheat
 - d. Durum Wheat
- _____ 10. A futures option can be exercised by:
- a. the option seller
 - b. the option buyer
 - c. both the buyer & seller
 - d. either the buyer OR seller
- _____ 11. What is the term used to describe the method in which agricultural producers and merchants AVOID price risk by using the futures market?
- a. futures
 - b. forward contract
 - c. speculate
 - d. hedge
- _____ 12. What type of risk does Wheat futures hedging decrease?
- a. financial
 - b. price
 - c. production
 - d. management
- _____ 13. Which group below does NOT assume risk in futures transactions?
- a. hedgers
 - b. floor traders
 - c. speculators
 - d. anyone without inventory
- _____ 14. Futures prices and cash prices tend to move in _____ direction(s).
- a. unrelated
 - b. the opposite
 - c. the same
 - d. delta

Please match the appropriate definition in the right column and below with the options term in the left column and place your response in the blank beside each term.

EXAMPLE:

- | | |
|---|---|
| <p>_____ futures contract</p> <p>1. _____ call option</p> <p>2. _____ exercise</p> <p>3. _____ expiration date</p> <p>4. _____ option buyers</p> <p>5. _____ option sellers</p> <p>6. _____ premium</p> <p>7. _____ put option</p> <p>8. _____ strike price</p> <p>9. _____ underlying futures contract</p> | <p>z. a bi-lateral contract that specifies delivery of a certain quality of a good at a specified time, place, and price</p> <p>a. a futures option that gives the holder the right to BUY a futures contract</p> <p>b. the option purchasing cost</p> <p>c. a futures option that gives the holder the right to SELL a futures contract</p> <p>d. what an option holder does to acquire a futures position at the option strike price</p> <p>e. the futures price at time the option is purchased; and the price a futures position may be acquired</p> <p>f. the specific futures contract described by the option</p> <p>g. the last date that a futures option may be exercised</p> <p>h. persons who have the right to exercise futures options</p> <p>i. persons obligated to perform according to contract terms</p> |
|---|---|

Would you like a personal copy of the computer diskette that has the hedging and futures options lessons?

What is your age? _____ sex? _____
family size? _____

What is the last year of high school education that you have completed? _____

Did you take vocational agriculture? _____

What kind of post-high school training have you had?

How many years? _____

Have you had any formal training (high school, college, Vo-tech, etc.) in advanced marketing techniques, futures hedging, or futures options? _____

If yes, please describe: _____

What kind of Extension or private industry training have you had in advanced marketing, futures hedging, or futures options?

Have you ever used the futures market to hedge?

to speculate? _____

Have you ever used futures OPTIONS to hedge or speculate?

What other types of farm management and marketing courses would you like to have provided by computer and/or VCR (video-cassette recorder)?

What is the size of your farm operation?

_____ acres owned

_____ acres rented

_____ acres cropland

_____ acres pasture

\$_____ net worth

What are other comments that you would like to make in regard to using the computer and video-cassette recorder as learning tools?

APPENDIX C. OPTN1 LESSON

Screen Order Listing for optn1, 03-19-1986 18:42:25

NO.	Screen	Type	Label
1	OPTN1001	text	title

insert after title

mc text

,t04=

,t05=

,t06=

,t07=

,t08=

,t09=

,t10=

,t12=

,t13=

,t14=

,t17=

,t18=

,t19=

,t20=

,t21=

,t22=

,t23=

,t24=

gen

OSU OPTIONS

TUTORIAL

PART 4 OF 6

by: Phil Hamilton
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2	OPTN1050	text	whyoptions
---	----------	------	------------

end

insert after whyoptions

mc text

,t01=

,t02=

,t03=

,t04=

,t05=

,t06=

,t07=

,t08=

,t09=

,t10=

,t11=

,t12=

,t13=

,t14=

,t15=

,t16=

,t17=

,t18=

,t19=

,t20=

gen

Why Use Options ??

OPTIONS allow agricultural producers and others to eliminate "downside price risk" while allowing them to benefit from commodity price increases. They know that the MOST the "options hedge" will cost is the price of the options premium.

Downside risk is when fluctuating commodity prices DECLINE while the crop is growing or in storage.

```

3          OPTN1100      text      objective
end
insert after objective
mc text
,t04=
,t05=
,t06=
,t07=
,t08=
,t12= To understand agricultural options
,t13= by becoming familiar with terminology
,t14= and arithmetic involved with options
,t15= on agricultural commodity futures
,t16= contracts.
,t19=
,t20= ***** NOTICE *****
,t21= It is IMPORTANT that you understand
,t22= the concept of FUTURES HEDGING prior
,t23= to study of OPTIONS (#1, #2, or #3)
,t24=
gen

```

```

4          OPTN1120      text      specific
end
insert after specific
mc text
,t02= SPECIFIC OBJECTIVES should include
,t03= being able to --
,t05= 1. Explain the concept of futures
,t06=    options and the rights and
,t07=    obligations of option buyers
,t08=    and sellers.
,t10= 2. Explain option pricing and
,t11=    factors that affect prices of
,t12=    commodity futures options.
,t14= 3. Calculate outcomes of option
,t15=    transactions for both buyers
,t16=    and sellers.
,t18= 4. List basic reasons why options
,t19=    are bought and sold.
gen

```

```

5          OPTN1140      text      terms1
end
insert after terms1
mc text
,t02= TERMS used in the option lessons
,t03= are --
,t06= at-the-money
,t08= buyer
,t10= call option
,t12= exercise
,t14= expiration date
,t16= holder
,t18= in-the-money
,t20= intrinsic value
,t22= offset
,t24= out-of-the-money

```

```

gen
  6          OPTN1141      text      terms2
end
insert after terms2
mc text
,t02= More TERMS used --
,t05= premium
,t07= put option
,t09= seller
,t11= strike price
,t13= time value
,t15= underlying contract
,t17= writer
gen

```

```

  7          OPTN1160      text      optiondef
end
insert after optiondef
mc text
,t02=
,t03=
,t04=
,t05=
,t06=
,t10= It is the RIGHT but NOT the obliga-
,t11= tion to buy or sell the underlying
,t12= commodity futures contract according
,t13= to prescribed terms agreed upon in
,t14= exchange for a premium payment.
,t18= The OPTION to perform is left
,t19= entirely with buyers; only sellers
,t20= MUST perform on the uni-lateral
,t21= contract.
gen

```

What is a futures OPTION?

```

  8          OPTN1180      text      putscalls
end
insert after putscalls
mc text
,t04=
,t05=
,t06=
,t07=
,t08=
,t11=
,t12=
,t13=
,t14=
,t15=
,t19=
,t20=
,t21=
,t22=
,t23=
,t24=
gen

```

A PUT option conveys the right to SELL the underlying commodity futures contract.

A CALL option conveys the right to BUY the underlying commodity futures contract.

The underlying contract is the specific contract -- such as July Wheat -- which the option buyer has the right to SELL (in the case of the put) or BUY (in the case of a call).

```

9          OPTN1190      ques      quest01
end
insert after quest01
mc ques
,q03= TRUE or FALSE:
,q05= Downside risk occurs when grain
,q06= producers face RISING commodity
,q07= prices.
,c01= false
,c14= Correct! Downside risk is ONLY
,c15= concern for DECLINING commodity
,c16= prices.
,c10=cdefedc
,h01= Please choose either true or false.
,u01= Please choose either true or false.
,w01= Sorry, downside risk occurs when
,w11= grain producers face DECLINING
,w12= commodity prices.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

10         OPTN1191      ques      quest02
end
insert after quest02
mc ques
,q03= TRUE or FALSE:
,q05= Just like futures hedging, the use
,q06= of options to hedge a commodity
,q07= price "locks-in" the selling price,
,q08= regardless of which way the price
,q09= moves.
,c01= false
,c14= Sure, options have the advantage
,c15= since they may be allowed to expire
,c16= when prices increase (for a PUT).
,h01= Please guess.
,u01= Please choose either true or false.
,w01= true
,w11= No, the advantage of options is that
,w12= they may be allowed to expire when
,w13= prices increase (for a PUT).
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```



```

11          OPTN1192      ques      quest03
end
insert after quest03
mc ques
,q03=  A bi-lateral contract obligates
,q04=  BOTH the buyer and seller to ful-
,q05=  fill the terms of a contract.  A
,q06=  uni-lateral contract allows one
,q07=  party to decide if the contract
,q08=  will be fulfilled.
,q10=  How would you classify option
,q11=  contracts?
,c01=  unilateral
,c14=  Right, options obligate ONLY the
,c15=  SELLER, not the buyer of the option.
,c09=q61
,c10=cdefedc
,c02=  uni-lateral
,u01=  Sorry, the answer is uni-lateral;
,u02=  only the SELLER is OBLIGATED.
,w01=  bi-lateral
,w11=  No, ONLY the SELLER is OBLIGATED.
,w06=q61
,w07=x
,e01=-
,z01=row=11,col=15,len=12,hlt=2,mov=0
gen

```

```

12          OPTN1193      match      quest04
end
insert after quest04
mc match
,q01=Please MATCH the following terms in
,q02=the left column with ones in the right
,q04=1. put option          a. sell futures
,q06=2. call option        b. premium cost
,q08=3. maximum loss       c. futures contr
,q10=4. underlying com'ty  d. options right
,q12=5. uni-lateral        e. buy futures
,p01=e
,m07=5
,x01=y
,m01=a
,m02=e
,m03=b
,m04=c
,m05=d
,c05=Right!  You have answered all five
,c06=questions correctly.
,c01=q41
,c02=cdefedc
,w05=Sorry, at least one of your choices
,w06=was wrong.
,w02=x
gen

```

```

13          OPTN1200      text      landcontrt
end
insert after landcontrt
mc text
,t01=
,t02= LAND CONTRACT ANALOGY
,t03=
,t04=
,t05= A type of OPTION which everyone is
,t06= familiar is an option to purchase
,t07= land. For example, if your neigh-
,t08= bor is offering to sell 160 acres
,t09= of land for $1,000 per acre -- and
,t10= for any reason you are not willing
,t11= to purchase the land for six months
,t12= -- you may purchase an option to buy
,t13= six months from now.
,t14=
,t15= If the value of the land declines or
,t16= for any other reason, you may let
,t17= the option expire.
,t18=
,t19= If the value of the land increases,
,t20= you may EXERCISE your option and
,t21= pay the purchase price of the land.
,t22=
,t24= The deposit is called a PREMIUM.
gen

```

```

14          OPTN1220      text      puts
end
insert after puts
mc text
,t02=
,t03= PUT OPTION
,t04= is the RIGHT but not
,t05= the obligation to sell (go short)
,t06= a particular futures contract
,t07= (such as the July Wheat futures
,t08= contract).
,t12= The buyer of the July Wheat put
,t13= obtains protection from DECLINING
,t14= prices of wheat. The wheat may
,t15= be either in storage or still
,t16= growing in the field.
,t19= The producer (buyer) receives the
,t20= same price protection that would
,t21= be gained from a hedge -- without
,t22= giving up the opportunity to
,t23= benefit from a rising wheat price.
gen

```

15 OPTN1240 text calls

end

insert after calls

mc text

,t01=

,t02=

CALL OPTION

,t03=

gives the option

,t04= buyer (merchandiser) the RIGHT, but

,t05= not the obligation, to BUY (go

,t06= long) a particular futures contract

,t07= (such as a July Wheat futures

,t08= contract) at a specified price

,t09= AT ANY TIME DURING THE LIFE OF THE

,t10= OPTION.

,t15= The merchandiser gets the same

,t16= price protection benefits gained

,t17= from a regular futures hedge

,t18= without giving up the chance to

,t19= purchase the wheat at a lower price

,t20= if there is a decline.

gen

16 OPTN1260 text offset

end

insert after offset

mc text

,t04= LIQUIDATION of an option held by an

,t05= option BUYER may be accomplished by

,t06= SELLING an IDENTICAL OPTION at any

,t07= time PRIOR TO EXPIRATION.

,t10= LIQUIDATION by an option SELLER can

,t11= be completed by PURCHASING ("buying-

,t12= in") an IDENTICAL OPTION at any time

,t13= prior to BEING ASSIGNED A NOTICE OF

,t14= EXERCISE. Once a seller has been

,t15= assigned a notice by the Clearing

,t16= Corporation, the seller will AUTO-

,t17= MATICALLY acquire a futures posi-

,t18= tion (which may be held or offset).

gen

17 OPTN1265 text strikepric

end

insert after strikepric

mc text

,t04=

,t05=

STRIKE PRICE

,t06=

,t09= The price per bushel at which the

,t10= buyer of a PUT has the right to

,t11= SELL a futures contract or a buyer

,t12= of a CALL has the right to BUY

,t13= a futures contract. It is also

,t14= referred to as the EXERCISE PRICE.

,t16= The strike is predetermined and is

,t17= specified in the options contract.

,t19= Simultaneous trading of options

,t20= at various strike prices occurs

```
,t21=    -- so that you can choose the
,t22=    option that best serves your needs.
gen
```

```
18          OPTN1270          text          exercise
end
insert after exercise
mc text
,t03=
,t04=      EXERCISE
,t05=
,t08=    The action taken by the buyer
,t09=    (holder) of an option who wishes
,t10=    to acquire a position in the
,t11=    underlying futures contract at
,t12=    the option strike price.
gen
```

```
19          OPTN1275          ques          quest05
end
insert after quest05
mc ques
,q04=    What kind of option will Oklahoma
,q05=    Wheat producers be most interested?
,c01=    put
,c14=    Right! Most Oklahoma Wheat produ-
,c15=    cers will be interested in protec-
,c16=    ting from down-side risk.
,c10=cdefedc
,h01=    Either PUT or CALL.
,u01=    Please choose either PUT or CALL.
,w01=    call
,w11=    No, most producers will be interes-
,w12=    ted in the simplest way to protect
,w13=    from down-side risk: PUT.
,z01=row=7,col=3,len=4,hit=2,mov=0
gen
```

```
20          OPTN1276          ques          quest06
end
insert after quest06
mc ques
,q03=    TRUE or FALSE:
,q05=    An option may be exercised ANY
,q06=    TIME before the expiration date.
,c01=    true
,c14=    Right! Just call your broker.
,c09=q51,q61
,c10=cdefedc
,h01=    Either true or false.
,u01=    Please choose either true or false.
,w01=    false
,w11=    No, you may exercise any time before
,w12=    the expiration date.
,w06=q51,q61
,w07=x
,z01=row=3,col=20,len=5,hit=2,mov=0
gen
```

```

21          OPTN1277      ques      quest07
end
insert after quest07
mc ques
,q03= TRUE or FALSE:
,q05= Selling an IDENTICAL OPTION (same
,q06= strike price, same month, same
,q07= commodity, same type [PUT or CALL])
,q08= is required in order to liquidate
,q09= the option position.
,c01= true
,c14= Sure, you MUST sell an IDENTICAL
,c15= option in order to liquidate the
,c16= position.
,c09=q51,q61,q71,q81
,c10=cdegedc
,h01= Hey, what do you expect on a true
,h02= or false answer?
,u01= Please choose either true or false.
,w01= false
,w11= Sorry.
,w06=q51,q61,q71,q81
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

22          OPTN1278      ques      quest08
end
insert after quest08
mc ques
,q03= What term is used to describe the
,q04= price per bushel that the buyer
,q05= of a PUT pays in order to have the
,q06= right to SELL a futures contract?
,c01= premium
,c14= Right!
,c10=cdefedc
,h01= It is the same term that is used
,h02= for the cost of insurance.
,u01= Sorry, the term is PREMIUM (just
,u02= like an insurance premium).
,z01=row=8,col=3,len=8,hlt=2,mov=0
gen

```

```

23          OPTN1279          ques          quest09
end
insert after quest09
mc ques
,q01= Please choose the correct answer --
,q03= What is the source of the STRIKE
,q04= PRICE?
,q06= a. Price is set by Clearing Corpora-
,q07=      tion.
,q09= b. Price is set by Commodity Futures
,q10=      Exchange Commission.
,q12= c. Price is approximately the same
,q13=      as the previous day's closing
,q14=      commodity futures price.
,c01= c
,c14= Right! Each strike price is based
,c15= on the closing -- either above, be-
,c16= low, or the same.
,c09=q121,q131,q141
,c10=cdefedc
,h01= Think about the underlying commodity.
,u01= Please choose a, b, or c.
,w01= a
,w11= Sorry, the correct answer is "c."
,w06=q121,q131,q141
,w07=x
,w14= b
,w24= No, the correct answer is "c."
,w19=q121,q131,q141
,w20=x
,z01=row=4,col=10,len=1,hlt=2,mov=0
gen

```

```

24          OPTN1280          text          example01
end
insert after example01
mc text
,t01=
,t02=
,t03=
,t04=
,t05= If you hold a July Wheat PUT
,t06= with a $3.30 STRIKE price that
,t07= declines to $2.95, you would
,t08= want to either EXERCISE the
,t09= option at $3.30 OR SELL THE
,t10= OPTION RIGHTS TO SOMEONE ELSE.
,t11=
,t12=
,t13=
,t14= This is made possible since the
,t15= exchanges trade the options
,t16= continually right up to the day
,t17= of expiration.
,t18=
,t19=
,t20=
,t22=

```

,t23= Options PUT Example
 ,t24=
 gen

25 OPTN1300 text wheretrade
 end
 insert after wheretrade
 mc text
 ,t02=
 ,t03= WHERE ARE OPTIONS TRADED ?
 ,t04=
 ,t08= Options are traded at organized
 ,t09= and regulated exchanges such as
 ,t10= the Kansas City Board of Trade,
 ,t11= where options for "Hard Red Win-
 ,t12= ter Wheat" are bought and sold.
 gen

26 OPTN1320 text whichoptn
 end
 insert after whichoptn
 mc text
 ,t03=
 ,t04= WHICH OPTIONS WILL BE TRADED ?
 ,t05=
 ,t08= For each underlying futures con-
 ,t09= tract (such as July Wheat) there
 ,t10= will be trading in options with a
 ,t11= number of different STRIKE PRICES
 ,t12= -- at least five.
 ,t15= At the time options trading starts
 ,t16= for a particular contract, separate
 ,t17= options will be offered with strike
 ,t18= prices below, nearly equal to, and
 ,t19= above the currently-quoted price of
 ,t20= that futures contract.
 ,t23= When futures prices increase and/or
 ,t24= decrease strike prices are added.
 gen

27 OPTN1340 text howtraded
 end
 insert after howtraded
 mc text
 ,t01=
 ,t02= How are OPTIONS traded ?
 ,t03=
 ,t05= Options are traded the same way as
 ,t06= futures contracts: through public
 ,t07= outcry in Exchange pits -- with com-
 ,t08= petitive bids and offers. Once an
 ,t09= order is received on the trading
 ,t10= floor, it is immediately relayed to
 ,t11= a broker in the appropriate trading
 ,t12= pit for execution.
 ,t14= When the transaction is executed, a
 ,t15= confirmation and details are promptly
 ,t16= communicated to the customer and the

,t17= price (premium) quotations are elec-
 ,t18= tronically sent to brokers and other
 ,t19= offices worldwide.
 ,t21= Option BUYERS do NOT put up a margin
 ,t22= but pay ONLY the option premium; but
 ,t23= option SELLERS MUST deposit money in-
 ,t24= to a margin account.
 gen

28 OPTN1500 text optnprice1
 end
 insert after optnprice1
 mc text
 ,t02=
 ,t03=

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N

 ,t04= Option pricing is really
 ,t05= quite simple as long as
 ,t06= you are aware of a few
 ,t07= simple concepts.
 ,t08= First of all, you need to
 ,t09= know how much an option
 ,t10= costs on the day you are
 ,t11= considering a purchase.
 ,t12= The "premium" cost is the
 ,t13= MOST that must be given up
 ,t14= for a single options con-
 ,t15= tract. Deciding whether
 ,t16= the option is affordable
 ,t17= depends on your individual
 ,t18= ability to bear price risk.
 ,t19=
 ,t20=
 ,t21= Bearing price risk depends
 ,t22= on both your agricultural financial
 ,t23= condition AND your personal aversion
 ,t24= or acceptance of risk.
 gen

29 OPTN1600 ques quest10
 end
 insert after quest10
 mc ques
 ,q01=
 ,q02=
 ,q03= If you hold a July Wheat PUT, there
 ,q04= is an incentive to "exercise the
 ,q05= option" when the underlying futures
 ,q06= price (increases,
 ,q07= decreases, remains constant).
 ,q08=
 ,q09=
 ,c01= decreases
 ,c14= Right! Exercising the option would
 ,c15= bring a HIGHER price than the cash
 ,c16= market will provide.
 ,c10=cdefedc
 ,h01= Hedging is used as a safeguard from
 ,h02= adverse price CHANGES.


```
,h04= Either increase or decrease.
,u01= Please choose either: increases,
,u02= decreases, or remains constant.
,w01= increases
,w11= No, if the underlying futures price
,w12= increases the incentive would be to
,w13= let the option expire.
,w07=x
,w14= remainsconstant
,w24= No, if there is NO change, then the
,w25= intrinsic value would also remain
,w26= constant; therefore, NO incentive.
,x05= Remember that options and futures
,x06= are used to decrease PRICE RISK
,x07= associated with fluctuating prices.
,z01=row=6,col=8,len=17,hlt=2,mov=0
gen
```

```
30          OPTN1610      ques      quest11
end
```

```
insert after quest11
```

```
mc ques
```

```
,q01=
,q02=
,q03= Wheat options and futures are traded
,q04= in Minneapolis, Chicago, and Kansas
,q05= City. Which Commodity Exchange
,q06= trades Hard Red Winter Wheat?
,q07=
,q08=
,q09=
,q10=
```

```
,c01= kansascity
,c14= Correct! The ONLY Commodity Futures
,c15= Exchange that trades Hard Red Winter
,c16= Wheat is Kansas City Board of Trade.
,c09=q61
,c10=cdefedc
,h01= Soft Winter Wheat, Spring Wheat, and
,h02= Duram Wheat is grown in Northern
,h03= states.
,u01= Please choose Minneapolis, Chicago,
,u02= or Kansas City.
,w01= minneapolis
,w11= No, the correct answer is Kansas
,w12= City.
,w07=x
,w14= chicago
,w24= No, the correct answer is Kansas
,w25= City.
,w20=x
,x05= Wheat producers in Oklahoma will use
,x06= the Kansas City Board of Trade to
,x07= decrease price risk.
,z01=row=8,col=3,len=15,hlt=2,mov=0
gen
```

```

31          OPTN1620      ques      quest12
end
insert after quest12
mc ques
,q03= What is the minimum number of strike
,q04= prices for a given option?
,q06= three
,q08= five
,q10= seven
,q12= nine
,c01= five
,c14= That's right! The first time they
,c15= are offered there 2 above, 2 below,
,c16= & the approximate closing futures.
,c09=q84
,c10=cefedc
,h01= Between 3 and 9.
,u01= Please choose 3,5,7, or 9.
,w01= three
,w11= Sorry, the correct answer is five.
,w06=q81
,w07=x
,w14= seven
,w24= Sorry, the correct answer is a
,w25= MINIMUM of five.
,w19=q81
,w20=x
,w27= nine
,w37= Sorry, the correct answer is a
,w38= MINIMUM of five.
,w32=q81
,w33=x
,x05= Although the minimum is five, there
,x06= may be more strike prices added as
,x07= futures closing prices change.
,x01=q31,q41,q81
,z01=row=4,col=30,len=5,hlt=2,mov=0
gen

```

```

32          OPTN1630      ques      quest13
end
insert after quest13
mc ques
,q02=
,q03= Which option traders are REQUIRED
,q04= to deposit margin money?
,q05=
,q06=
,c01= sellers
,c14= Right! Option BUYERS are NOT
,c15= required to put up a margin deposit
,c16= UNLESS they exercise their option.
,c09=q51
,c10=cdefedc
,h01= Either sellers or buyers.
,u01= Please choose either sellers or
,u02= buyers.
,w01= buyers

```

```
,w11= Not quite since buyers only have to
,w12= deposit margin money IF they exercise
,w13= their option.
,w07=x
,x05= Option holders who EXERCISE their
,x06= option enter into the futures market
,x07= AND are then subject to margin calls.
,z01=row=5,col=28,len=8,hlt=2,mov=0
gen
```

```
33          OPTN1640          ques          quest14
end
```

```
insert after quest14
```

```
mc ques
```

```
,q01=
,q02=
,q03= What is the MOST that must be given
,q04= up if a PUT is purchased (excluding
,q05= brokerage commission)?
,q06=
,q07= The
,q08=
,q09=
,c01= premium
,c14= Right! The option BUYER knows up
,c15= front what his/her TOTAL out-of-
,c16= pocket expense (loss) is.
,c09=q31,q41,q51,q74
,c10=cdefedc
,h01= What is the cost of other types of
,h02= insurance called?
,u01= Sorry, the correct answer is premium.
,z01=row=7,col=6,len=7,hlt=2,mov=0
gen
```

```
34          OPTN1650          ques          quest15
end
```

```
insert after quest15
```

```
mc ques
```

```
,q03= TRUE or FALSE --
,q05= The PUT purchaser's ability to bear
,q06= risk is a major factor in deciding
,q07= whether an option is affordable.
,c01= true
,c14= Correct! Different producers can
,c15= financially handle different levels
,c16= of loss.
,c09=q51,q61,q71
,c10=cdefedc
,h01= Guess!!
,u01= Please choose either true or false.
,w01= false
,w11= No, not every producer will choose
,w12= the same strike price -- some can
,w13= afford to lose more than others.
,w07=x
,x05= At least five different strike
,x06= prices are offered in order to fit
```

```
,x07= differing financial situations.  
,z01=row=3,col=20,len=5,hlt=2,mov=0  
gen  
end
```

APPENDIX D. OPTN2 LESSON

Screen Order Listing for optn2, 03-19-1986 19:15:02

NO.	Screen	Type	Label
1	OPTN2001	text	title

insert after title

mc text

,t04=

,t05=

,t06=

,t07=

,t08=

,t09=

,t10=

,t12=

,t13=

,t14=

,t17=

,t18=

,t19=

,t20=

,t21=

,t22=

,t23=

,t24=

gen

OSU OPTIONS

 TUTORIAL

 PART 5 OF 6

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 Northwest District

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2	OPTN2501	text	optnprice2
---	----------	------	------------

end

insert after optnprice2

mc text

,t01=

,t02=

,t03=

,t06= Secondly, your option pricing concern

,t07= should be with what, if anything, a

,t08= particular option will be worth at

,t09= EXPIRATION -- on the last day that it

,t10= is traded.

,t12=

,t13=

,t14=

,t15=

,t16=

,t17=

,t18=

,t21= If nothing can be realized by exer-

,t22= cising the option, it will have no

,t23= value; the option will expire

,t24= worthless.

gen

OPTION

PRICING

An option's value at expiration
 will reflect whatever amount of
 money the option holder (buyer)
 could realize by exercising the
 option.

```

3          OPTN2505      ques      QUEST1
end
insert after QUEST1
mc ques
,q03= TRUE or FALSE --
,q05= An option's value at expiration is
,q06= whatever amount of money the option
,q07= holder can realize by exercising
,q08= the option.
,c01= true
,c14= Right! This is the strike price
,c15= minus the futures price.
,c09=q51,q61,q71,q81
,c10=cdefedc
,h01= True or false.
,u01= Please choose either true or false.
,w01= false
,w11= No, the difference between the
,w12= strike price and the futures price
,w13= will be the value of the option.
,w06=q51,q61,q71,q81
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

4          OPTN2510      text      intrinsic
end
insert after intrinsic
mc text
,t02=
,t03=
,t04= Intrinsic Value is the amount of
,t05= money, if any, that could currently
,t06= be realized by exercising an option
,t07= with a given strike price.
,t08=
,t09=
,t10= A CALL OPTION has intrinsic value
,t11= if its strike price is BELOW the
,t12= futures price.
,t13=
,t14=
,t15= A PUT OPTION has intrinsic value
,t16= if its strike price is ABOVE the
,t17= futures price.
,t18=
,t19=
,t22=
,t23=
,t24=
gen

```

INTRINSIC VALUE

```

5          OPTN2511      text      intrinexam
end
insert after intrinexam
mc text
,t02=
,t03= INTRINSIC VALUE EXAMPLE
,t04=
,t06= If a PUT option has a strike price
,t07= of $3.50 and the underlying futures
,t08= price is $3.00, the put option will
,t09= have an INTRINSIC VALUE of $.50.
,t12= If a CALL option has a strike price
,t13= of $3.50 and the underlying futures
,t14= price of $4.00, the call option will
,t15= have an INTRINSIC VALUE OF $.50.
,t19= IF AN OPTION WOULD NOT BE WORTHWHILE
,t20= TO EXERCISE, WE WOULD SAY THAT IT HAS
,t21= NO "INTRINSIC" VALUE.
gen

```

```

6          OPTN2515      ques      quest2
end
insert after quest2
mc ques
,q03= TRUE or FALSE --
,q05= Intrinsic value is simply the
,q06= strike price minus the current
,q07= futures price.
,c01= true
,c09=q52,q62,q72
,c10=cdefedc
,u01= Please choose either true or false.
,w01= false
,w11= Sorry, your response is incorrect.
,w06=q52,q62,q72
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

7          OPTN2516      ques      quest3
end
insert after quest3
mc ques
,q01= PLEASE FILL IN THE BLANK with one of
,q02= the possible answers below:
,q05= A CALL OPTION has intrinsic value if
,q06= its strike price is _____ the
,q07= futures price; a PUT OPTION has in-
,q08= trinsic value if its strike price is
,q09= _____ the futures price.
,q11= a. above; above.
,q12= b. below; below.
,q13= c. above; below.
,q14= d. below; above.
,c01= d
,c14= Correct! A call is below; a put is
,c15= above.
,c10=cdefedc

```

Correct Answer:

```
,u01= Choose "a", "b", "c" or "d".
,w01= a
,w11= You are half right. The correct
,w12= response is "d".
,w07=x
,w14= b
,w24= You are half right. The correct
,w25= answer is "d".
,w20=x
,w27= c
,w37= Sorry! You have them just backwards.
,w33=x
,x05= REMEMBER: Call Strike Below Futures
,x06= Put Strike Above Futures
,x07= both equal intrinsic value.
,z01=row=13,col=33,len=1,hlt=2,mov=0
gen
```

```
8 OPTN2517 ques quest4
end
insert after quest4
mc ques
,q03= TRUE or FALSE --
,q05= If an option is worthwhile to
,q06= exercise, we would say that it
,q07= has NO intrinsic value.
,c01= false
,c14= Right, the statement is written
,c15= backwards: THERE IS INTRINSIC
,c16= VALUE.
,c10=CDEFEDC
,h01= Choose either true or false.
,u01= Choose either true or false.
,w01= true
,w11= Sorry, we would say that it HAS
,w12= INTRINSIC value.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen
```

```
9 OPTN2530 text INTHEMONEY
end
insert after INTHEMONEY
mc text
,t04= If an option has intrinsic value,
,t05= we say that the option is --
,t06= IN-THE-MONEY.
,t08= That is, the option is considered
,t09= worthwhile to exercise -- by the
,t10= amount of intrinsic value.
,t13= In the above PUT OPTION EXAMPLE
,t14= (previous screen), the option was
,t15= in the money by $.50. That is the
,t16= amount that would be realized IF
,t17= the put option was exercised AND
,t18= the underlying futures contract
,t19= was "bought" back.
,t22=
```

,t23=
 ,t24=
 gen

IN-THE-MONEY

10 OPTN2540 ques quest5
 end
 insert after quest5
 mc ques
 ,q03= Is an option that is "in-the-money"
 ,q04= (that is, worthwhile to exercise)
 ,q05= considered to have intrinsic value?
 ,c01= yes
 ,c14= Sure, that is why we are concerned
 ,c15= about intrinsic value.
 ,c10=cdefedc
 ,u01= Please answer yes or no.
 ,w01= no
 ,w11= Sorry, because we want to know when
 ,w12= an option is "in-the-money" is why
 ,w13= we're calculating intrinsic value.
 ,w07=x
 ,z01=row=7,col=3,len=3,hlt=2,mov=0
 gen

11 OPTN2550 text outofmoney
 end
 insert after outofmoney
 mc text
 ,t04= A PUT option is out-of-the-money
 ,t05= if the futures price is ABOVE the
 ,t06= option strike price.
 ,t09= A CALL option is said to be out-of-
 ,t10= the-money if the underlying futures
 ,t11= price is currently BELOW the
 ,t12= option strike price.
 ,t14=
 ,t15= FOR EXAMPLE, if the underlying fu-
 ,t16= tures price is currently \$3.50, a
 ,t17= PUT option to SELL the futures con-
 ,t18= tract at \$3.00 would be OUT-OF-THE-
 ,t19= MONEY by \$.50.
 ,t20=
 ,t22=
 ,t23=
 ,t24=
 gen

OUT-OF-THE-MONEY

```

12      OPTN2560      ques      quest6
end
insert after quest6
mc ques
,q03= TRUE or FALSE --
,q05= A PUT option is out-of-the-money
,q06= if the futures price is BELOW the
,q07= option strike price.
,c01= false
,c14= No, it is out-of-the-money if the
,c15= futures price is ABOVE the option
,c16= strike price.
,c10=cdefedc
,u01= Please choose either true or false.
,w01= true
,w11= No, a PUT option is out-of-the-
,w12= money if the futures price is ABOVE
,w13= the option strike price.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

13      OPTN2570      text      atthemoney
end
insert after atthemoney
mc text
,t04= If the option strike price and the
,t05= underlying futures price are approx-
,t06= imately the same, the option is
,t07= considered to be -- AT-THE-MONEY.
,t10= An AT-THE-MONEY option has NO in-
,t11= trinsic value and like an out-of-
,t12= the-money option, the holder will
,t13= let it expire worthless.
,t17= IN OTHER WORDS, if, at expiration,
,t18= an option is NOT WORTHWHILE TO
,t19= EXERCISE, it will expire worthless.
,t22=
,t23=
,t24=
gen

```

AT-THE-MONEY

```

14      OPTN2580      ques      quest7
end
insert after quest7
mc ques
,q03= What is it called when the option
,q04= strike price and the underlying
,q05= futures price are approximately
,q06= equal?
,c01= atthemoney
,c14= Correct!!
,c10=cdefedc
,h01= ___-the-money
,u01= Sorry, the correct response is:
,u02= at-the-money.
,w01= inthemoney
,w11= Sorry, there is no intrinsic value

```

```
,w12= and therefore is called: at-the-
,w13= money.
,w07=x
,w14= outofthemoney
,w24= Sorry, the correct response is:
,w25= at-the-money.
,w20=x
,e01=-
,z01=row=8,col=3,len=20,hlt=2,mov=0
gen
```

```
15          OPTN2590          text          outatexamp
end
insert after outatexamp
mc text
,t02=
,t03= 

|             |
|-------------|
| For Example |
|-------------|


,t04=
,t07= Say you hold a July Wheat PUT
,t08= option with a strike price of
,t09= $3.30.
,t12= If, at expiration, the July Wheat
,t13= futures price is OVER $3.30, it
,t14= stands to reason that no one is
,t15= going to pay you anything for the
,t16= right to buy the futures contract
,t17= for more than they can buy it on
,t18= the open market.
,t20= You will allow your option to expire
,t21= worthless and forfeit whatever amount
,t22= of premium you initially paid for
,t23= the option.
gen
```

```
16          OPTN2600          ques          quest8
end
insert after quest8
mc ques
,q03= A grain producer would let an
,q04= option expire worthless and forfeit
,q05= premium paid if at expiration the
,q06= option is :
,q08= a. in-the-money
,q10= b. at-the-money
,q12= c. out-of-the-money
,q14= d. both "b" and "c".
,c01= d
,c14= Right! Under either condition, it
,c15= would NOT be worthwhile to exercise
,c16= the futures option.
,c09=q31,q41,q51,q61,q80,q140,q101,q121
,c10=cdefedc
,u01= Choose a, b, c, or d.
,w01= a
,w11= No, "a" is the only totally incor-
,w12= rect response.
,w07=x
,w14= b
```

```
,w24= Your are one-half right; "d" is
,w25= the correct choice (both at- and
,w26= out-of-the-money).
,w20=x
,w27= c
,w37= You are only one-half right; "d" is
,w38= the correct response: at-the-money
,w39= and out-of-the-money are BOTH right.
,w33=x
,z01=row=6,col=15,len=1,hlt=2,mov=0
gen
```

```
17 OPTN2605 ques quest9
end
insert after quest9
mc ques
,q02= TRUE or FALSE --
,q04= If an option is in-the-money, an
,q05= option holder MUST either EXERECISE
,q06= the option or OFFSET the option by
,q07= selling the rights to another
,q08= buyer.
,c01= false
,c14= Right! An option holder may also
,c15= let the option expire and receive
,c16= NONE of the rights.
,c10=cdefedc
,u01= Please choose either true or false.
,w01= true
,w11= No, the holder may also let the
,w12= option expire worthless.
,w07=x
,z01=row=2,col=20,len=5,hlt=2,mov=0
gen
```

```
18 OPTN2610 text exercise
end
insert after exercise
mc text
,t01=
,t02= What IF
,t03= an Option
,t04= IS worthwhile
,t05= to EXERCISE ?
,t06=
,t09= Assume you hold a July Wheat PUT
,t10= with a $3.30 strike price and that,
,t11= at expiration, the July futures
,t12= price is $3.00.
,t14= Since you hold the RIGHT TO SELL
,t15= at $3.30 a futures contract which
,t16= can be bought for $3.00, it follows
,t17= that this right will be worth $.30.
,t20= If you have your broker SELL the
,t21= option, you may be able to realize
,t22= $.30/bushel for 5,000 bushels of
,t23= Wheat per contract.
gen
```

```

19          OPTN2615      ques      quest10
end
insert after quest10
mc ques
,q03= TRUE or FALSE --
,q05= Intrinsic value has the same meaning
,q06= regardless of whether the option is
,q07= a PUT or CALL.
,c01= true
,c14= Sure, it is the value of the option
,c15= upon expiration (no time value is
,c16= left).
,u01= Please choose either true or false.
,w01= false
,w11= Sorry, intrinsic value is the SAME
,w12= in either case.
,w06=q51,q61,q71
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

20          OPTN2620      text      repeat
end
insert after repeat
mc text
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
,t17=
gen

```

IN SUMMARY, AN OPTION'S VALUE AT EXPIRATION WILL BE EQUAL TO ITS INTRINSIC VALUE -- THE AMOUNT BY WHICH IT IS "IN-THE-MONEY." THAT GOES FOR BOTH PUTS AND CALLS.

```

21          OPTN2640      text      PUTSTRATEG
end
insert after PUTSTRATEG
mc text
,t01=
,t02=
,t03=
,t05= Remembering that a PUT is an option
,t06= to SELL a futures contract at a fixed
,t07= price (the option strike price), an
,t08= Oklahoma Wheat producer may wish to
,t09= buy a put during planting time (Sep-
,t10= tember) in order to establish a MIN-
,t11= IMUM SELLING PRICE for his/her grain.
,t14= BUYING THE PUT WOULD NOT PRECLUDE THE
,t15= OPPORTUNITY TO PROFIT FULLY FROM A
,t16= PRICE INCREASE -- except to the
,t17= amount of the option premium.
,t20= This is the advantage of of OPTIONS
,t21= over futures hedging or forward con-

```

A Strategy for Buying Put Options

```

,t122= tracking.
gen
  22          OPTN2650      ques      quest12
end
insert after quest12
mc ques
,q03= What kind of futures contract does
,q04= a PUT holder have the RIGHT (but
,q05= not the obligation) to convert?
,c01= sell
,c14= Right, the PUT is an option to sell
,c15= one futures contract; a CALL is an
,c16= option to buy one futures contract.
,c10=cdefedc
,c02= long
,c03= golong
,h01= Either "buy" or "sell".
,u01= Sorry, the correct answer is "sell"
,u02= (go short).
,w01= buy
,w11= No, a CALL holder has the right to
,w12= buy (or go long).
,w07=X
,w14= long
,w24= Sorry, the correct answer is "sell"
,w25= or "go short".
,e01=go
,z01=row=7,col=3,len=8,hlt=2,mov=0
gen

  23          OPTN2651      ques      quest12a
end
insert after quest12a
mc ques
,q03= TRUE or FALSE --
,q05= One advantage of options over a
,q06= re,q06= regular futures hedge is that the
,q07= PUT holder may benefit from a rise
,q08= in the commodity's price.
,c01= true
,c14= Sure! If it is to the option
,c15= holder's benefit, he/she may let
,c16= the option expire.
,c09=q51,q61,q71,q81
,c10=cderedc
,u01= Please choose true or false.
,w01= false
,w11= No, it is true that higher prices
,w12= may be taken -- less the cost of
,w13= the option premium.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

24          OPTN2660          text          strategy2
end
insert after strategy2
mc text
,t06= During September you pay a premium
,t07= of 25 cents for a July $3.30 PUT;
,t08= this gives you the RIGHT (but not
,t09= the obligation) to go short (sell)
,t10= in the futures market at a price of
,t11= $3.30.
,t12=
,t13= The RIGHT continues for as long as
,t14= you hold the option -- UNTIL you
,t15= SELL it or EXERCISE it or until it
,t16= EXPIRES in June.
,t23= To see how the PUT provides price
,t24= protection --
gen

```

```

25          OPTN2665          ques          quest13
end
insert after quest13
mc ques
,q03= What happens if an option holder
,q04= fails to exercise an option that
,q05= is in-the-money at the expiration
,q06= date?
,q08= a. premium is refunded.
,q10= b. the option is converted to a
,q11= futures contract.
,q13= c. the option expires worthless.
,q15= d. margin money is required.
,c01= c
,c14= Right! The advantage of option is
,c15= that the holder may let it expire
,c16= without further costs.
,c09=q151
,c10=cdefedc
,u01= Please choose a, b, c, or d.
,w01= a
,w11= Sorry, that amount is lost.
,w06=q134
,w07=x
,w14= b
,w24= No! The option holder must EXERCISE
,w25= the option to convert it into a
,w26= futures contract.
,w19=q134
,w20=x
,w27= d
,w37= No, margin money is NEVER required
,w38= UNLESS the option is converted into
,w39= a futures contract.
,w32=q134
,w33=x
,z01=row=6,col=10,len=1,hlt=2,mov=0
gen

```



```

26          OPTN2670          text          strategy3
end
insert after strategy3
mc text
,t02=
,t03=  How Puts Provide Price PROTECTION
,t04=
,t07= Assume that by June (harvesttime)
,t08= the entire U.S. Wheat crop is LARGER
,t09= than expected, demand is weaker than
,t10= expected (if that is possible), and
,t11= the July futures price has declined
,t12= to $2.80. The Put with a strike
,t13= price of $3.30 would have an intrin-
,t14= sic value of $.50.
,t17= The only difference between this Put
,t18= option and having hedged in the
,t19= futures or forward contracted is
,t20= the 25 cents that was paid for the
,t21= option. Otherwise, they are identi-
,t22= cal.
gen

```

```

27          OPTN2675          ques          quest14
end
insert after quest14
mc ques
,q04= If we trade options, are we still
,q05= concerned about BASIS and BASIS
,q06= RISK when determining the "Effec-
,q07= tive Selling Price"?
,c01= yes
,c14= Right, we need to subtract the
,c15= expected BASIS from the closing
,c16= futures price to get the "ESP."
,c10=cdefedc
,u01= Please choose either "yes" or "no".
,w01= no
,w11= Sorry, the "ESP" is determined by
,w12= subtracting the BASIS from the
,w13= futures price.
,w07=x
,x05= "ESP" means: Effective Selling
,x06= Price.
,z01=row=7,col=25,len=3,hlt=2,mov=0
gen

```

```

28          OPTN2680      text      strategy4
end
insert after strategy4
mc text
,t01=
,t02= What Happens If The Price Goes UP ?
,t03=
,t05= Suppose at harvest the crop is not
,t06= as large as expected, demand is a
,t07= bit larger than expected, and the
,t08= July futures price has risen to
,t09= $3.80/bushel. If this occurs, you
,t10= let your PUT option expire worthless.
,t11= You then sell your Wheat crop at the
,t12= higher market price.
,t14= The initial 25 cents price is the
,t15= cost of the "price insurance." Thus,
,t16= the EFFECTIVE SELLING PRICE is
,t17= $3.80 - .25 - Basis = $3.55 - Basis.
,t19=
,t20= The advantage of using OPTIONS over
,t21= regular futures hedging is that you
,t22= did NOT give up the chance to profit
,t23= from the price increase.
,t24=
gen

```

```

29          OPTN2690      ques      quest15
end
insert after quest15
mc ques
,q04= Are you in financial jeopardy if
,q05= you cover your ENTIRE wheat crop
,q06= with options contracts AND there
,q07= is a CROP FAILURE with NO insur-
,q08= ance?
,c01= no
,c14= Right! Your premium ONLY is at
,c15= risk -- no other costs will be
,c16= added if you do NOT exercise.
,c10=cdefedc
,u01= Please choose either "yes" or "no".
,w01= yes
,w11= No, one of the advantages of OPTIONS
,w12= is that any or all may be exercised
,w13= or allowed to expire worthless.
,w07=x
,z01=row=8,col=10,len=3,hlt=2,mov=0
gen

```

```

30          OPTN2700      text      strategy5
end
insert after strategy5
mc text
,t03=
,t04= Another Advantage of Options --
,t05=
,t07= is that if someone who has forward
,t08= contracted were to LOSE their crop,
,t09= they would remain obligated to make
,t10= good on their contractual commit-
,t11= ment. If prices have risen sharply
,t12= this can involve an UNNECESSARY and
,t13= LARGE FINANCIAL SET-BACK. The PUT
,t14= buyer does not incur this expense.
gen

```

```

31          OPTN2720      text      offsetoptn
end
insert after offsetoptn
mc text
,t03= Many options will NOT be exercised
,t04= even though the option may have
,t05= intrinsic value. Instead, most
,t06= option buyers will choose to
,t07= liquidate their position by an
,t08= OFFSETTING "SELL."
,t12= If there is NO INTRINSIC value,
,t13= the option will be allowed to expire
,t14= worthless.
,t16=
,t17= Because buyers exercise options
,t18= ONLY if and when they have intrin-
,t19= sic value, the opposite future
,t20= position acquired by the option
,t21= "seller" has a built-in loss; but,
,t22= the loss may be offset by the gain
,t23= in premium received.
,t24=
gen

```

```

32          OPTN2730      ques      quest16
end
insert after quest16
mc ques
,q04= What is a means to benefit from an
,q05= options hedge without EXERCISING a
,q06= held option?
,c01= offset
,c14= Right! An option holder may choose
,c15= to sell the contract rights to an-
,c16= other buyer to recapture premium.
,c10=cdefedc
,h01= An option may be disposed of two
,h02= ways: EXERCISE or _____.
,h05= OFFSET.
,u01= Sorry, instead of being EXERCISED,
,u02= an option may be OFFSET for the gain

```

```
,u03= in premium.
,w01= forfeited
,w11= Sorry, crop price protection would
,w12= be gained by OFFSETTING.
,w07=x
,z01=row=6,col=16,len=6,hlt=2,mov=0
gen
```

```
33 OPTN2735 ques quest17
end
insert after quest17
mc ques
,q04= TRUE or FALSE --
,q07= There is a built-in loss to the
,q08= seller of options that have
,q09= intrinsic value.
,c01= true
,c14= Right, but the loss may be offset
,c15= by the gain in premium received.
,c09=q71,q81
,c10=cdefedc
,u01= Please respond with true or false.
,w01= false
,w11= Sorry, the built-in loss may be
,w12= offset by the gain in the premium
,w13= received.
,w06=q71,q81
,w07=x
,z01=row=4,col=20,len=5,hlt=2,mov=0
gen
```

```
34 OPTN2740 text premiumpri
end
insert after premiumpri
mc text
,t01=
,t02= How are OPTION PREMIUMS PRICED ?
,t03=
,t05= The pricing is determined by buyers
,t06= who want to pay as little as possi-
,t07= ble and sellers who want the most
,t08= premium possible.
,t11= Pricing is determined using competi-
,t12= tive bidding by public outcry in
,t13= Commodity Futures Exchanges. Each
,t14= strike price has an individual
,t15= premium price.
,t19=
,t20= OPTION PREMIUMS consist of two
,t21= components:
,t22= 1. INTRINSIC VALUE.
,t23= 2. TIME VALUE.
,t24=
gen
```

```

35          OPTN2745          ques          quest18
end
insert after quest18
mc ques
,q03= TRUE or FALSE --
,q05= Option premium prices are set by
,q06= the Commodity Exchange before
,q07= trading begins each day.
,c01= false
,c14= No, prices are determined by open
,c15= outcry in the Exchange pits for
,c16= each Option Strike Price.
,c10=cdefedc
,u01= Please choose either true or false.
,w01= true
,w11= No, the are determined by public
,w12= outcry in Exchange pits.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

36          OPTN2750          ques          quest19
end
insert after quest19
mc ques
,q04= Option premiums consist of two
,q05= components: intrinsic value and
,q06= _____ value.
,c01= time
,c14= Sure, the longer the time, the more
,c15= the risk.
,c09=q41,q51,q61
,c10=cdefedc
,h01= The longer the time, the more risk
,h02= that involved.
,u01= Sorry, the answer is TIME.
,z01=row=6,col=3,len=4,hlt=2,mov=0
gen

```

```

37          OPTN2760          text          INTRINTIME
end
insert after INTRINTIME
mc text
,t01=
,t02= 

|           |
|-----------|
| Intrinsic |
| Value     |

 This component of an
,t03= Value option's premium is the
,t04= amount that an option is
,t05= currently IN-THE-MONEY; for a PUT, it
,t06= is the amount that the futures price
,t07= is BELOW the strike price.
,t08=
,t12=
,t13= 

|       |
|-------|
| Time  |
| Value |

 This component is the
,t14= Value sum of money that buyers
,t15= are willing to pay for
,t16= an option in the anticipation that a
,t17= change in the underlying futures price
,t18=

```

,t19=will cause the option to increase in
 ,t20=value OVER TIME.
 gen

38 OPTN2780 text premfactor
 end
 insert after premfactor
 mc text

,t02=
 ,t03= Factors Affecting Premium Prices
 ,t04=
 ,t07= 1. Length of time remaining until
 ,t08= expiration.
 ,t10= 2. The volatility of the underly-
 ,t11= ing futures price.
 ,t13= 3. Short-term interest rates to
 ,t14= the extent that higher rates
 ,t15= will result in lower premiums.
 gen

39 OPTN2790 ques quest20
 end
 insert after quest20
 mc ques
 ,q01= Which of the following affect
 ,q02= option premium prices?
 ,q05= a. Volatility of underlying futures
 ,q06= prices.
 ,q08= b. Length of time remaining until
 ,q09= expiration.
 ,q11= c. Short-term interest rates.
 ,q13= d. All of the above.
 ,c01= d
 ,c14= Right! They all affect premium
 ,c15= prices.
 ,c09=q51,q61,q81,q91,q111,q134
 ,c10=cdefedc
 ,u01= Please choose one of the above
 ,u02= letters.
 ,w01= a
 ,w11= You are partly right -- all affect
 ,w12= option premium prices.
 ,w07=x
 ,w14= b
 ,w24= You are partly right -- all of the
 ,w25= above affect option premium prices.
 ,w27= c
 ,w37= You are partly right -- all of the
 ,w38= above affect premium prices.
 ,w33=x
 ,z01=row=2,col=27,len=1,hlt=2,mov=0
 gen

```

40          OPTN2800      text      pricesumma
end
insert after pricesumma
mc text
,t02=
,t03=
,t04=
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
,t17=
,t18=
,t19=
,t20=
,t21=
,t22=
,t23=
,t24=
gen
end

```

P
R S
I U
C M
I M
N A
G R
Y

1. Option premiums are set by supply and demand, through competition between buyers and sellers in the pits of the Futures Exchanges.
2. An option will have ONLY intrinsic value at expiration; if an option has no intrinsic value at expiration, it will expire worthless.
3. Before expiration, an option's premium will consist of its intrinsic value (if any) PLUS its time value (if any). An option will consist entirely of time value IF there is no intrinsic value.

APPENDIX E. OSPEC LESSON

NO.	Screen	Type	Label
1	OSPEC001	text	title

insert after title

mc text

,t04=

,t05=

,t06=

,t07=

,t08=

,t09=

,t10=

,t12=

,t13=

,t14=

,t17=

,t18=

,t19=

,t20=

,t21=

,t22=

,t23=

,t24=

gen

OSU OPTIONS

 TUTORIAL

 PART 6 OF 6

by: Phil Hamilton
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2	OSPEC510	text	units
---	----------	------	-------

end

insert after units

mc text

,t05=

,t06=

,t07=

,t08=

,t09=

,t10=

,t11=

,t16=

,t17=

,t18=

,t19=

gen

KANSAS CITY WHEAT OPTIONS
SPECIFICATIONS

The specifications are for options
ONLY at the Kansas City Board of
Trade AND for wheat.

3	OSPEC520	text	tradeunit
---	----------	------	-----------

end

insert after tradeunit

mc text

,t04=

,t05=

,t06=

,t07=

,t08=

,t09=

,t10=

,t11=

,t12=

,t13=

,t14=

,t15=

Trading
Unit

The option is for one (1)
Kansas City Wheat futures
contract. The futures
contract is for 5,000

```
,t16= bushels of Hard Red Winter
,t17= Wheat.
,t18=
gen
```

```
4 OSPEC530 text months
end
insert after months
mc text
,t02=
,t03= Contract
,t04= Months
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
,t17=
,t18=
,t19=
,t20=
,t21= The same as the underlying
,t22= futures contract.
,t23=
gen
```

```

graph TD
    A[Contract Months] --> B[March  
May  
July  
September  
December]
    B --> C[The same as the underlying  
futures contract.]
  
```

```
5 OSPEC535 ques q01
end
insert after q01
mc ques
,q03= Which of the following choices are
,q04= the contract months for Kansas City
,q05= Wheat?
,q07= 1. Jan, Mar, May, Jul, Sep, Nov.
,q08= 2. Jan, Mar, Jul, Sep, Dec.
,q09= 3. Mar, May, Jul, Sep, Dec.
,q10= 4. Feb, Apr, Jun, Aug, Oct, Dec.
,q11= 5. Feb, Apr, Jun, Aug, Oct.
,c01= 3
,c14= Correct! Two times before harvest,
,c15= and three times after harvest.
,c09=q92
,c10=cdefedc
,h01= Two times before harvest.
,h04= Three times after harvest.
,u01= Please choose 1, 2, 3, 4, or 5.
,u04= Sorry, the answer is #3 (Mar, May,
,u05= Jul, Sep, and Dec.
,w01= 1
,w11= Sorry, the correct answer is #3
,w06=q92
```

```
,w07=x
,w14= 2
,w24= Sorry, the correct answer is #3.
,w19=q92
,w20=x
,w27= 4
,w37= Sorry, the correct answer is #3.
,w32=q92
,w33=x
,w40= 5
,w50= Sorry, the correct answer is #3.
,w45=q92
,w46=cdefedc
,z01=row=5,col=11,len=1,hlt=2,mov=0
gen
```

```
6 OSPEC540 text hours
end
```

```
insert after hours
```

```
mc text
```

```
,t09=
```

```
,t10=
```

```
,t11=
```

```
,t12=
```

```
,t13=
```

```
,t14=
```

```
gen
```

Trading
Hours

9:30 a.m. to 1:15 p.m.
Central Time. (Same as
underlying futures
contract.)

```
7 OSPEC545 ques q02
```

```
end
```

```
insert after q02
```

```
mc ques
```

```
,q03= TRUE or FALSE:
```

```
,q05= Options trade during the same hours
```

```
,q06= as the underlying futures contract.
```

```
,c01= true
```

```
,c14= That's right! You can be assured
```

```
,c15= that both options and futures trade
```

```
,c16= at the same time.
```

```
,c09=q51,q61
```

```
,c10=cdefedc
```

```
,u01= Please answer either true or false.
```

```
,w01= false
```

```
,w11= No, they trade at the same time,
```

```
,w12= 9:30 a.m. to 1:15 p.m.
```

```
,z01=row=3,col=20,len=5,hlt=2,mov=0
```

```
gen
```

```

      8          OSPEC550      text      symbols
end
insert after symbols
mc text
,t04=
,t05=
,t06=
,t08=
,t09=
,t10= CALLS:
,t11=
,t12=
,t16=
,t17=
,t18= PUTS:
,t19=
,t20=
gen

```

Ticker Symbols

```

      9          OSPEC555      ques      q03
end
insert after q03
mc ques
,q04= The ticker symbol for Kansas City
,q05= Wheat CALLS is "WC." The ticker
,q06= symbol for Kansas City Wheat PUTS
,q07= is " ."
,c01= wp
,c14= Correct, Kansas City Wheat PUTS
,c15= is recognized by "WP."
,c09=q41,q51,q61,q71
,c10=cdefedc
,u01= The correct response is "WP."
,w01= kc
,w11= Sorry, the correct response is
,w12= "WP."
,w07=x
,w14= kp
,w24= No, the answer is "WP."
,w20=x
,z01=row=7,col=8,len=2,hlt=2,mov=0
gen

```

```

     10          OSPEC560      text      INTERVALS
end
insert after INTERVALS
mc text
,t03=
,t04=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t15=

```

Strike Price
Intervals

PER BUSHEL

```

gen
  11          OSPEC565      ques      q04
end
insert after q04
mc ques
,q02=
,q03= Strike price intervals are      cents.
,q04=
,c01= 10
,c14= Right! Each strike price interval
,c15= is 10 cents below or above the next
,c16= strike price.
,c09=q34
,c10=cdefedc
,u01= Sorry, try again.
,u04= The correct answer is 10 cents.
,w01= 25
,w11= No, 25 cents is the price LIMIT
,w12= move for futures contracts.
,w07=x
,x05= The options strike prices start with
,x06= the nearest closing futures price
,x07= in the middle.
,x01=q31
,z01=row=3,col=29,len=2,hlt=2,mov=0
gen

```

```

  12          OSPEC570      text      LISTING
end
insert after LISTING
mc text
,t03=
,t04= Listing of Strike Prices
,t05=
,t07=
,t08=
,t09=
,t10= The Kansas City Board lists new
,t11= STRIKES to maintain 3 above and
,t12= 3 below futures settlement prices
,t13= for each contract month. No new
,t14= strikes are added during expiration
,t15= month. Strikes are taken off with
,t16= no trading activity or open interest
,t17= for 10 consecutive days.
gen

```

```

13          OSPEC580      text      fluctuatio
end
insert after fluctuatio
mc text
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
,t17=
,t18=
,t19=
gen

```

Minimum Price Fluctuation

1/8 cent per bu.
(\$.00125)

\$6.25 per contract

```

14          OSPEC585      ques      q05
end
insert after q05
mc ques
,q03= TRUE or FALSE:
,q05= Just like the underlying futures
,q06= contract, the minimum price fluc-
,q07= tuation of option prices is 1/4
,q08= cent or $12.50 per contract.
,c01= false
,c14= Correct! The minimum price fluc-
,c15= tuation for OPTIONS is 1/8 cent
,c16= or $6.25 per contract.
,c10=cdefedc
,h01= Please take a guess.
,u01= Please respond with a true or false.
,w01= true
,w11= Sorry, the minimum OPTIONS price
,w12= fluctuation is one-half the futures:
,w13= 1/8 cent or $6.25 per contract.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

15          OSPEC590      text      limit
end
insert after limit
mc text
,t03=
,t04=
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=

```

Daily Price Limit

\$.25 per bushel

\$1,250 per contract

```
,t15=
,t16=
,t17=
,t20= (Same as the underlying contract.)
gen
```

above and below
previous settlement

```
16 OSPEC595 ques q06
end
insert after q06
mc ques
,q03= TRUE or FALSE:
,q05= The daily price limit on options
,q06= is $1,250 above and below previous
,q07= settlement.
,c01= true
,c14= Right, you can expect a price move-
,c15= ment of NO more than 25 cents/bu.
,c16= (5,000 bu. X $.25/bu. = $1,250).
,c09=q51,q61,q71
,c10=cdefedc
,h01= 5,000 X $.25 = $1,250
,u01= Please choose either true or false.
,w01= false
,w11= Sorry, the daily price limit is
,w12= 25 cents X 5,000 bushels = $1,250.
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen
```

```
17 OSPEC600 text lastday
end
insert after lastday
mc text
,t04=
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
,t17=
,t18=
,t19=
,t20=
,t21=
gen
```

Last
Day
of
Trading

Trading shall end at
1:00 p.m. Central Time
on the Friday which is
at least 10 BUSINESS
DAYS prior to the
first notice day of
the underlying futures
contract. (The first
notice day for Kansas
City Wheat futures is
the last business day
of the month preceding
the contract month.
For example, the first
notice day for July
Kansas City Wheat
futures is the last
business day of June.)

```

18          OSPEC605          text          expiration
end
insert after expiration.
mc text
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
gen

```

Expiration
Day

10:00 a.m. Central
Time on the first
Saturday following
the last trading
day.

```

19          OSPEC610          text          lastdays
end
insert after lastdays
mc text
,t01=
,t02=
,t03=
,t04=
,t05=
,t06=
,t07=
,t09=
,t11=
,t13=
,t15=
,t17=
,t19=
,t21=
gen

```

LAST TRADING DAYS & EXPIRATION DATES

Option Series	Last Trading Day	Expiration
Sep '85	Aug 16, 1985	Aug 17, 1985
Dec '85	Nov 8, 1985	Nov 9, 1985
Mar '86	Feb 7, 1986	Feb 8, 1986
May '86	Apr 11, 1986	Apr 12, 1986
Jul '86	Jun 13, 1986	Jun 14, 1986
Sep '86	Aug 15, 1986	Aug 16, 1986
Dec '86	Nov 7, 1986	Nov 8, 1986

```

20          OSPEC615          match          q07
end
insert after q07
mc match
,q01= Please match the Option Series with
,q02= the corresponding Expiration date on
,q03= the left.
,q05= 1 Nov 9, 1985          a Dec, 1986
,q06= 2 Apr 12, 1986        b Dec, 1985
,q07= 3 Jun 14, 1986        c Jul, 1986
,q08= 4 Nov 8, 1986         d May, 1986
,q09= 5 Feb 8, 1986         e Mar, 1986
,q11= Remember that you can press "PgUp"
,q12= to see the last screen.
,p01=e
,m07=5
,x01=y
,m01=b
,m02=d
,m03=c
,m04=a

```



```
,m05=e
,c05= Congratulations! You have answered
,c06= all 5 matches correctly.
,c01=q71
,c02=cdefedc
,w05= Sorry, you have answered at least
,w06= one match incorrectly.
,w02=x
gen
```

```
21          OSPEC620          ques          q08
end
insert after q08
mc ques
,q04= What is the last TRADING DAY for
,q05= the July 1986 option series?
,q07= a. July 13, 1986
,q08= b. June 13, 1986
,q09= c. June 14, 1986
,q10= d. June 30, 1986
,q14= Again, you may press "PgUp" twice
,q15= to get to the screen showing dates.
,c01= b
,c14= Correct, the last trading day is the
,c15= day BEFORE the expiration date. This
,c16= allows for adequate clearing.
,c09=q84
,c10=cdefedc
,u01= Please choose a, b, c, or d.
,w01= a
,w11= Sorry, the last trading day occurs
,w12= the month before the underlying
,w13= futures contract expires.
,w06=q81
,w07=x
,w14= No, June 14 is the expiration date;
,w24= the last trading day is the day
,w25= before.
,w19=q81
,w20=x
,w27= d
,w37= No, the last day of trading is the
,w38= day before the expiration day --
,w39= June 13, 1986.
,w32=q81
,w33=x
,z01=row=5,col=33,len=1,hlt=2,mov=0
gen
```

```

22      OSPEC630      text      procedures
end
insert after procedures
mc text
,t01=
,t02=
,t03=
,t04=
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
,t17=
,t18=
,t19=
gen

```

E
x
e
r
c
i
s
e

P
r
o
c
e
d
u
r
e
s

Kansas City Wheat Options may be exercised at any time during the life of the contract by GIVING NOTICE TO THE CLEARING CORPORATION by 4:00 p.m. ON ANY REGULAR BUSINESS DAY. Options may be exercised until 10:00 a.m. Central Time on the expiration date. There is no automatic exercise at expiration.

```

23      OSPEC635      ques      q09
end
insert after q09
mc ques
,q03= TRUE or FALSE:
,q05= Kansas City Wheat Options may be
,q06= exercised at any time during the
,q07= life of the contract by GIVING
,q08= NOTICE TO THE CLEARING CORPORATION
,q09= AT ANY TIME ON ANY REGULAR BUSINESS
,q10= DAY.
,c01= false
,c14= Right! Notice must be given by 4:00
,c15= on any given business day.
,c10=cdefedc
,u01= Please either true or false.
,w01= true
,w11= Sorry, the notice must be given by
,w12= 4:00 p.m.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen

```

```

24      OSPEC640      text      reportable
end
insert after reportable
mc text
,t03=
,t04=
,t05=
,t06=
,t09=
,t10=
,t11=
,t12=
,t13=
,t14=
,t15=
,t16=
gen

```

Reportable
Positions

A position of 25
puts or 25 calls
in a contract
month, regardless
of the strike
price.

```

25      OSPEC645      ques      q10
end
insert after q10
mc ques
,q04= What is the number of calls and
,q05= puts that must have been traded
,q06= during a contract month in order
,q07= that they be reported?
,c01= 25
,c14= Right, reportable positions occur
,c15= when their 25 puts or 25 calls in
,c16= a contract month.
,c10=cdefedc
,h01= The number is between 20 and 30.
,u01= Sorry, the answer is 25 puts or
,u02= 25 calls.
,z01=row=7,col=28,len=4,hlt=2,mov=0
gen

```

```

26      OSPEC650      text      limits
end
insert after limits
mc text
,t02=
,t03=
,t04=
,t05=
,t06=
,t07=
,t08=
,t09=
,t10=
,t11=
,t15=
,t16=
,t17= Consult Exchange for current infor-
,t18= mation regarding other types of
,t19= positions and exemptions.
,t20=
,t21=

```

P
o
s
i
t
i
o
n
s

L
I
M
I
T
S

CALLS: No more than
600 long and
600 short.

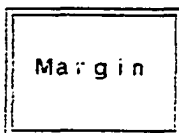
PUTS: No more than
600 long and
600 short

Consult Exchange for current infor-
mation regarding other types of
positions and exemptions.

```

gen
  27          OSPEC660      text      margin
end
insert after margin
mc text
,t01=
,t02=
,t03=
,t04=
,t05=
,t07= There is NO margin required for LONG
,t08= option positions, but the FULL premi-
,t09= um must be paid in CASH.
,t12= Margin for SHORT option positions
,t13= will be the outright margin for the
,t14= underlying future and the value of
,t15= the option premium marked to the
,t16= market.
,t19= Contact your brokerage firm or the
,t20= Kansas City Board of Trade for
,t21= covered options, straddles and
,t22= spread margins.
gen

```



```

  28          OSPEC665      ques      q11
end
insert after q11
mc ques
,q03= TRUE or FALSE:
,q05= There is no margin required for
,q06= LONG or SHORT option positions.
,c01= false
,c14= No margin is required for LONG
,c15= positions but there is a SHORT
,c16= option margin plus the premium.
,c10=cdefedc
,u01= Please choose either true or false.
,w01= true
,w11= Sorry, the SHORT position is the
,w12= outright margin plus the value of
,w13= the option premium.
,w07=x
,z01=row=3,col=20,len=5,hlt=2,mov=0
gen
end

```